

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The Mining Journal is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2270.—VOL. XLIX.

LONDON, SATURDAY, FEBRUARY 22, 1879.

[WITH SUPPLEMENT.] {PRICE SIXPENCE. PER ANNUM, BY POST, £1 4s.

MR. JAMES H. CROFTS, STOCK AND SHARE BROKER AND MINING SHARE DEALER.
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of Mining Stocks and Shares (British and Foreign), Consols, Banks, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.

BUSINESS negotiated in Stocks and Shares not having a general market value.

ACCOUNTS OPENED FOR THE FORTNIGHTLY SETTLEMENT
A Daily Price List, issued at 5 P.M., giving latest Quotations up to close of Market, and every Friday a general List containing closing prices of the week. MINES INSPECTED.

BANKERS: CITY BANK, LONDON; SOUTH CORNWALL BANK, ST. AUUSTELL.

SPECIAL DEALINGS in the following, or parts:—
30 Bettw-y-Coed, 10 Herodsfoot, 50 Pestarena, 4s.
20 Chapel House, 22 5s, 25 Hultafall (off. wntd.), 50 Parys Mount, 8s. 6d.
50 Chontales, 9s. 9d., 35 Leadhills, £13%, 45 Richmond, £20%.

40 Colorado, 38s., 50 Llanrwst, 40 Roman Grav., £26%.

20 Devon Consols, 30s., 25 Morfa Du, 20s., 50 Rookhope, 5s.
25 East Van, £2, 75 Pandora, 7s. 6d., 25 Tankerville, £2 1s. 3d.
55 Flagstaff, 6s. 9d., 100 Penrith, 2s.

SPECIAL BUSINESS in HERODSFOT Shares.
* SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS ON DEPOSIT OF TWENTY PER CENT.

RAILWAYS—SPECIAL BUSINESS.
FOREIGN BONDS—SPECIAL BUSINESS.
Fortnightly accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.
ESTABLISHED 1842.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER.
44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

BUSINESS transacted in STOCK EXCHANGE SECURITIES and MISCELLANEOUS SHARES of every description.
RAILWAYS, BANKS, FOREIGN and COLONIAL BONDS, TRAMWAYS, TELEGRAPHS, and all the LEADING INVESTMENTS.
Accounts opened for the Fortnightly Settlement.
A Stock and Share List free on application.

Mr. BUMPUS has SPECIAL BUSINESS in the undermentioned:—

150 Aberdaun, 25 Eberhardt, £3 13s. 9d, 150 Pestarena, 3s. 9d.
40 Birdseye Creek, 12s. 6d, 20 Fongoch, £2 11s. 3d., 20 Pateley Bridge, 21s.
25 Blue Tent, £2%, 35 Frontino, £2 11s. 3d., 60 Penrith, 2s. 6d.
70 Bodidris, 20 Gold Run, 6s., 70 Rookhope, 5s.
50 Colorado, 38s., 100 Glenroy, 10 Great Laxey, £14%, 15 Richmond, £10 3s. 9d.
100 Chontales, 10s. 6d., 20 Herodsfoot, £23%, 50 Roca, 2s. 6d.
50 Chapel House, £23%, 50 Hultafall, 10 So. Frances, 20 Tanierville, 41s.
5 Cape Copper, £28%, 70 Javali, 5s. 6d., 20 Van, £14%.

60 Derwent, 20 Leadhills, 21s., 25 Marke Valley, 11s., 20 Wh. Greenville, £23%.

20 Devon Cons., 40 Leadhills, 21s., 25 Marke Valley, 11s., 20 Wh. Greenville, £23%.

50 Don Pedro, 18s. 6d., 100 Parys Mount, 8s. 9d., 50 Wheel Crebor.

10 East Van, 35s. 6d., 50 Port Phillip, 10s. 6d.

IMPORTANT.—Owing to the general depreciation which has taken place during the past few months, many really SOUND STOCKS and SHARES may now be secured on very advantageous terms. Investors should, therefore, embrace the present favourable opportunity of purchasing before the inevitable reaction sets in.

A complete "List of Investments" for the present month (containing latest prices and a large amount of useful information) may be obtained free on application to Mr. BUMPUS.

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

WILLIAM HENRY BUMPUS, SWORN BROKER.
Offices: 44, Threadneedle Street, London, E.C.
BANKERS—THE NATIONAL PROVINCIAL BANK OF ENGLAND, E.C.

MESSRS. JONES AND HOUSTON, 25, CROSBY HALL CHAMBERS, LONDON, E.C.
STOCK AND SHARE DEALERS.

We are BUYERS of the following Shares for cash:—
50 COLORADO, £1 15s. per share.
100 CWM BRYNO, £1 15s. 9d. per share.
45 DON PEDRO, 18s. 6d.
20 RHYDALUN, £10.

RHYDALUN.—This promises to be one of the most successful Lead Mines ever brought before the public. It is only in its infancy, and from driving and sinking alone is making a profit of about £4000 a year, leaving the reserves intact. The shares will probably have a similar rise to DON PEDRO, which we strongly recommended in the Journal some weeks ago at 9s., since when they have touched 21s. each on the Stock Exchange.

BANKERS: London and Provincial.

MR. E. J. BARTLETT, BRITISH AND FOREIGN STOCK AND SHARE DEALER.
No. 30, GREAT ST. HELEN'S, LONDON, E.C.

Post free, One Shilling, Eleventh Edition, "HOW TO INVEST" Forwarded on application.

MR. THOMAS THOMPSON, JUN., STOCK BROKER,
1, PALMERSTON BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.

Mr. THOMPSON transacts business in every species of Stock Exchange and Mining securities.

Mr. THOMPSON affords reliable information to investors, and can give, when desired, a list of first-class Stocks and Shares, yielding 4 to 10 per cent. dividend upon present prices.—Mr. THOMPSON'S weekly Circular may be had on application.

MR. R. TREDINNICK, DEALER IN STOCKS AND SHARES,
CONSULTING AND ADVISING MINING ENGINEER,
7, UNION COURT, OLD BROAD STREET, E.C.

MR. GEORGE BUDGE, STOCK AND SHARE DEALER
9, GRACECHURCH STREET, LONDON, E.C. (Established 28 years)
ALL BUSINESS TRANSACTED FREE OF ANY CHARGE FOR COMMISSION.

Notice to Investors and Speculators.
Mr. BUDGE has SPECIAL BUSINESS in:—
5 Aberdaun, 150 East Caradon, 5s. 6d., 100 Llanrwst, 17s. 6d.
75 Alamillos, 25s., 100 Exchequer, 4s. 3d., 10 Lead Era.

32 Bettw-y-Coed, 50 Devonport and Tiverton Brewery, £4 18 9, 100 Parys Mount, 10s 7½

120 Bodidris, 15s., 30 Grogwinion, £23%, 30 Phoenix, £3 6s. 3d.

70 Chapel House, 75 Gawton, 4s., 100 Pitangul, 35 Penhalls.

BRITISH AND FOREIGN MINES.

SHAREHOLDERS and INVESTORS desirous of PURCHASING or SELLING SHARES in COPPER, TIN, LEAD, GOLD, or SILVER MINES can do so at market prices, and obtain information regarding the same on personal application, or by letter, of—
MESSRS. PETER WATSON AND CO.,
54, OLD BROAD STREET, LONDON, E.C.
Telegraphic Messages punctually attended to.

MR. ALFRED E. COOKE, STOCK AND SHARE DEALER.
78, OLD BROAD STREET, LONDON, E.C.
ESTABLISHED 1853.

HERODSFOT, PARYS MOUNTAIN, MORFA DU, and all the LEADING SHARES, can be had at lowest possible prices for CASH or ACCOUNT. The highest price given for any marketable shares.

ALFRED E. COOKE, 78, OLD BROAD STREET, LONDON.
ESTABLISHED 1853.

MR. JAMES STOCKER, STOCKBROKER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.
Mr. STOCKER transacts business in all Stock Exchange Securities. (Established 1842.)

BUSINESS in the FOLLOWING:—
Colorado, 38s. 3d., Great Laxey, £14 6s. 3d., Roman Gravels, £26%.

Chontales, 10s., Herodsfoot, 23s. 9d., Richmond, £20 18s. 9d.

Chapel House, 46s., Hultafall, 22s., Rossa Grande.

Don Pedro, 18s. 3d., Kapanga, 10s., South Frances, 28s.

East Van, 40s., Last Chance, 8s. 6d., Tankerville, 40s.

Eberhardt, £23%, Leadhills, 23s. 9d., United Mexican.

Flagstaff, 6s. 3d., Pandora, 7s. 6d., Van, 14%.

Frontino, £23%, Parys Mountain, 8s. 9d., Wheel Crebor, £23%.

BANKERS: LONDON AND WESTMINSTER.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 22 Years),
can sell the following SHARES, at prices annexed:—

50 Bodidris, 30 Flagstaff, 7s., 30 Pateley Bridge, 22s. 6d.

25 Cakemore, £3 12s. 6d., 20 Gorsead & Merl, £23%, 100 Pestarena, 3s. 6d.

50 Cambrian, 30s., 20 Herodsfoot, £23%, 100 Port Phillip, 9s. 9d.

100 Chontales, 10s. 9d., 20 Hultafall, £1 5s., 10 Roman Gravels, £26%.

20 Chapel House, 24s., 100 Javali, 4s. 9d., 18 So. Roman Grav., 2s. 6d.

20 Colorado, £1 16s. 3d., 25 Last Chance, 9s. 6d., 50 St. Bride Slate (off. w.)

60 Don Pedro, 18s., 50 Leadhills, £2, 10 Tankerville, £2 5s.

20 East Van, £2, 25 Llanrwst, 75 West Chiverton (all calls paid), 27s. 6d.

20 Eberhardt, £3 15s., 5 Minera, £9 17s. 9d., 25 Wheel Crebor, 9s.

10 East Caradon, 3s. 3d., 10 Monydd Gorddu, £23%, 40 N. Zea. Kap., 12s. 6d.

20 Frontino, £2 5s. 9d., 5 Van, £14%, 20 Tanierville, 41s.

BUYER of—100 Eberhardt, or any part, at 3s. Specially Recommended for an early rise in price;—Bodidris, Lead Era, Eberhardt, and Don Pedro.

FERDINAND R. KIRK, 5, BIRCHIN LANE, LONDON, E.C.
Has BUSINESS in:—
Colorado, Leadhills, Richmond, Sierra Buttes, St. Harmon, Wye Valley.

Don Pedro, Llanrwst, Port Phillip, Pestarena.

"THE WEEK."—A SEPARATE EDITION from that which appears in the Mining Journal is published every Wednesday evening, containing "Notes and Hints on the Stock Markets," with Closing Prices. May be had on application.

BANKERS: London and Westminster, Lothbury.

MR. J. ROSEWARNE, 3, CROTHALL BUILDINGS, LONDON, E.C.
Has BUSINESS in:—
Bettw-y-Coed, Gawton, Richmond, Roman Gravels, South Wales Frances, Van, West Chiverton, Wheel Crebor, Wheel Peavor.

Cakemore, Great Laxey, Gunnslake, Herodsfoot, Hingston Down, Llanrwst, Parys Mountain, Don Pedro, Llanrwst, Parys Mountain, Eberhardt, Money advanced on Mining Shares, or any other good Securities.

MESSRS. ENDEAN AND CO., 85, GRACECHURCH STREET LONDON, E.C., STOCK AND SHARE DEALERS.
Established in 1861.

BANKERS: Barclay, Bevan, and Co.; and London and Westminster Bank, Lothbury.

MR. JOHN B. REYNOLDS, STOCK AND SHARE DEALER,
70 AND 71, BISHOPSGATE STREET WITHIN, LONDON, E.C.
Established Twenty Years.

BANKERS: London—City Bank, Cornwall—Messrs. Tweedy, Williams, and Co., Redruth.

MR. F. CUNNINGHAM, STOCK AND SHARE DEALER, THE EXCHANGE, SOUTHWARK, LONDON, S.E.

A. B. BOTT AND CO., STOCK AND SHARE BROKERS,
9, UNION COURT, OLD BROAD STREET, E.C.

MESSRS. J. TAYLOR AND CO., MINING ENGINEERS AND INSPECTORS,
86, LONDON WALL, LONDON, E.C.,
Have Agents in England, Scotland, Wales, and on the Continent.
FOR SALE, 100 VIKNEBERG SHARES, at 33s.

MR. CHARLES THOMAS, MINING AGENT, STOCK AND SHARE DEALER,
3, GREAT ST. HELEN'S, LONDON, E.C.

MR. ALFRED THOMAS, MINING AGENT, AND STOCK AND SHARE DEALER.
10, COLEMAN STREET, LONDON, E.C.

MR. EDWARD ASHMEAD, 62, CORNHILL, LONDON, LONDON MINE AGENT, ACCOUNTANT, AND AUDITOR.

WILLIAM B. COBB, STOCK AND SHARE DEALER,
62, CORNHILL, LONDON, E.C.
Bankers: The Alliance Bank (Limited).

MESSRS. E. KINS AND CO., STOCK AND SHARE DEALERS,
14, QUEEN VICTORIA STREET, LONDON, E.C.

BUYERS of South De Eresby Shares. SELLERS of Tamar Shares at close prices. Bankers: Metropolitan.

WILLIAM GABBOTT, STOCK AND SHARE DEALER,
8, DRAPER'S GARDENS, LONDON, E.C.
Bankers: The National Provincial Bank of England.

MR. EDWARD BREWIS, STOCK AND SHARE DEALER,
15, GREAT ST. HELEN'S, LONDON, E.C.

Buyers or Sellers of Mine Shares, Railways, Foreign Bonds, and Miscellaneous descriptions of Stock and Shares may send their orders, and have their business promptly attended to for immediate cash, or the fortnightly account current, or for a deferred settlement.

Bankers: National Provincial Bank of England.

FOR SALE, the WHOLE or PART:—
20 East Van, 20 Hornachos, 120 Don Pedro North del Rey.
50 Hultafall, 100 Santa Barbara, 100 Morfa Du.
100 Bettw-y-Coed, 2 Rhydalun, 30 Gorsead and Merilyn.
100 Glyn, 100 Parys Mountain, 30 Gorsead and Merilyn.

The above shares are for absolute sale, and at very reasonable prices. Address, H. WILKINS and Co., 3, Heybourne Villas, Tottenham.

FOR SALE, the WHOLE or PART:—
200 Aberdaun, at 100 Argentine, at 3s. 6d., 50 Gorsead and Merilyn, 3s. 6d., cash, 50 Colorado (offer wntd.) offer wanted.

Address, "J. J., 608," Messrs. Deacon's, 154, Leadenhall-street, E.C.

FOR SALE, A GOING COLLIERY IN LANCASHIRE
In connection with the London and North-Western Railway. Present output 200 tons per day.

Messrs. WINSTANLEY and ASHWORTH, Mining Engineers, Lancaster Avenue, Fennel-street, Manchester.

FOR SALE, A DISCOVERY FOR EMBALMING THE DEAD. The whole body is preserved as when it died. Witnesses will testify to it. Address, "A. C.," 23, Colombarie, St. Helier's, Jersey.

LLANRWST LEAD MINE.
A GREAT BARGAIN.—FOR SALE, TWO HUNDRED SHARES, for £152 10s. net cash. Transfer with certificate will be forwarded or handed over in exchange for cash.

Address, Mr. A. DAVIDSON, 139, Leadenhall-street, London, E.C.

TO MINING COMPANIES, &c.
WANTED, A SITUATION as WORKING ENGINEER, at home or abroad. Excellent references, &c. Address, J. PROVIS, Basset-street, Camborne, Cornwall.

MINING AGENT OPEN TO A RE-ENGAGEMENT.
Has had considerable experience in METALLIC MINING in CORN WALL and the NORTH OF ENGLAND; also 15 years on the Continent. Speaks English, French, German, and Spanish, and has had charge of mines for many years. Practically acquainted with the most modern dressing apparatus, the most economical pumping and winding engines, boring machines, smelting, and general steam and water appliances. Inspections undertaken; plans of mines and assays carefully executed. Unexceptionable references.

Address, Mr. NANCE, 22, Stanley-street West, North Shields, Northumberland.

CAMPION'S MAP OF COLLIERIES, IRON, TIN, AND COPPER WORKS, RAILWAY STATIONS, AND DOCKS, IN THE MINERAL DISTRICT OF SOUTH WALES. Size, 3 ft. 9 in. by 2 ft. 8 in. Mounted and varnished on roller, or in convenient book form, price 21s. Address, CHARLES CAMPION, Neath.

MR. WILLIAM BREDEMAYER, MINING, CONSULTING AND CIVIL ENGINEER, U.S. MINERAL SURVEYOR FOR UTAH AND IDAHO. NOTARY PUBLIC.

Geological examinations; reports on mining properties; surveys mines, rail roads, and canals, and superintends the workings of the same. Prepares estimates and plans for opening and working mines. Expert on mining questions before the Courts.

Address, "P. O. Box 1157," Salt Lake City, Utah.

EXHIBITION OF SCIENCE APPLIED TO INDUSTRY.—
PALAIS DE L'INDUSTRIE, PARIS, 1879.

ENTRIES OF BRITISH GOODS CLOSE 28th FEB., 1879.

The Secretary has awarded to Mr. J. WALTER PEARSE, Engineer, Technical Interpreter, and Translator, 49, RUE DE PASSY, PARIS, the privilege of PLACING ALL MINING AND ENGINEERING EXHIBITS entrusted to his care in juxtaposition, so as to facilitate their representation.

For all information apply to—
MESSRS. EMILE CASPAR AND CO.,
73, GREAT TOWER STREET, E.C.,
Authorised Agents for Great Britain.

DISCLAIMER.
MESSRS. HARRISON, AINSLIE, AND CO., of ULVERSTON, and of 3, EAST INDIA AVENUE, LONDON, E.C., in reply to several applications they have received in consequence of their name having been associated with an alleged discovery of the late Mr. PERRY DOWNING, for the CONVERSION OF CLEVELAND IRON INTO STEEL, beg to state that they are in NO WAY INTERESTED, either directly or indirectly, in the PATENT taken out to deal with the above, nor in any company or association that may be formed or be in course of formation for its development.

RICA GOLD WASHING COMPANY
(LIMITED).
Notice is hereby given, that the TRANSFER BOOKS of this company will be CLOSED from TUESDAY, the 25th instant, to THURSDAY, the 20th proximo, both inclusive. By Order, SYDNEY A. COBBETT, Secretary.

1, Winchester House, Old Broad-street, London, E.C.,
20th February, 1879.

MALABAR GOLD WASHING COMPANY
(LIMITED).
Notice is hereby given, that the TRANSFER BOOKS of this company will be CLOSED from TUESDAY, the 25th instant, to THURSDAY, the 20th proximo, both inclusive. By Order, SYDNEY A. COBBETT, Secretary.

1, Winchester House, Old Broad-street, London, E.C.,
20th February, 1879.

MALPASO GOLD WASHING COMPANY
(LIMITED).
Notice is hereby given, that the TRANSFER BOOKS of this company will be CLOSED from TUESDAY, the 25th instant, to THURSDAY, the 20th proximo, both inclusive. By Order, SYDNEY A. COBBETT, Secretary.

1, Winchester House, Old Broad-street, London, F.C.,
20th February, 1879.



PARIS EXHIBITION, 1878.

GOLD AND SILVER MEDALS AWARDED for Steam-Engines & Boilers, also the Special Steam Pump, with Holman's Condenser & Compound Pumping Engine.



TANGYE BROTHERS AND HOLMAN,

HYDRAULIC AND GENERAL ENGINEERS,

CORNWALL HOUSE, 35, QUEEN VICTORIA STREET, LONDON, E.C.,

AND BIRMINGHAM, (TANGYE BROTHERS), CORNWALL WORKS, SOHO.

The "SPECIAL" DIRECT-ACTING STEAM PUMP, WITH Holman's Patent Self-acting Exhaust Steam Condensers.

UPWARDS OF 12,000 "SPECIAL" STEAM PUMPS ARE IN USE.

After eight years of successful application for all purposes to which steam-driven pumps can be applied, THE "SPECIAL" STEAM PUMP STILL MAINTAINS THE FIRST POSITION IN THE MARKET, notwithstanding that it alone—of all direct-acting pumps—has been subjected to the great variety of severe tests that must be encountered in such a period of time. Some valuable improvements have been suggested in the course of a long experience, and their adoption has rendered the apparatus at once the simplest and most certain in action. There is absolutely no extraneous gear, and the steam cylinder is no longer than the pump. The valves are of easy access, and are suited for pumping fluids and semi-fluids of almost any consistency.

Holman's Condenser

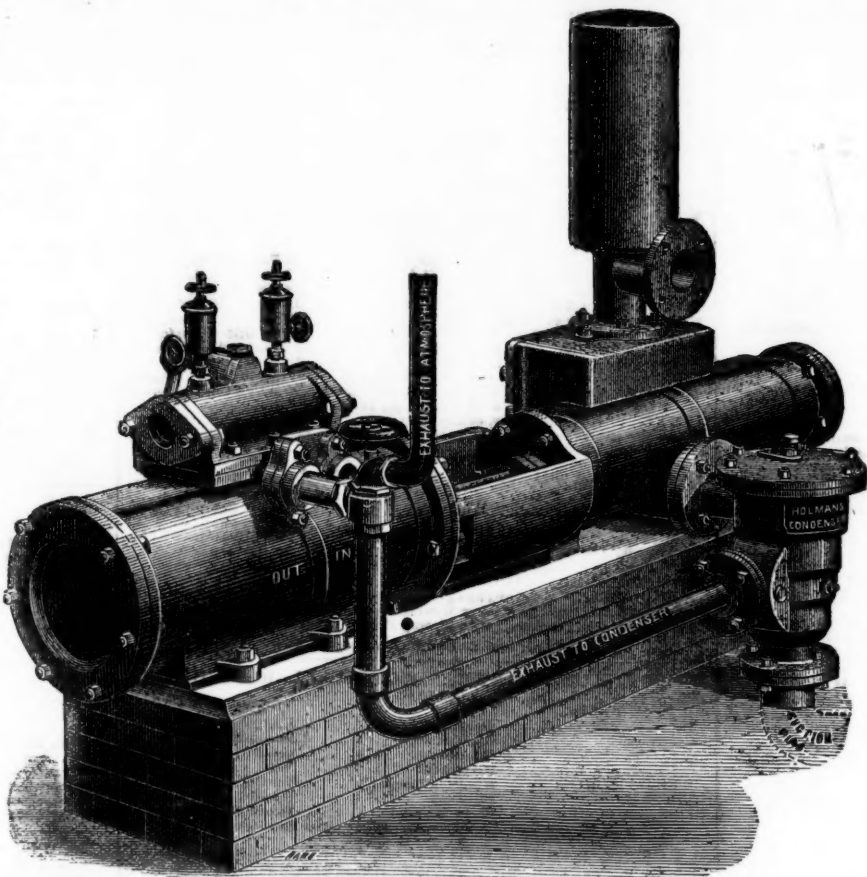
Turns waste steam into GREAT POWER.

Saves half its cost in pipes and connections.

Prevents all escape of steam in mines or elsewhere.

Requires no extra space.

Saves twenty to fifty per cent. of fuel.



WILLIAM ELLIOT, Esq., of the Weardale Iron and Coal Company, writes under date Sept. 17th, 1875, as follows:—"We have now THIRTY-FIVE of your SPECIAL STEAM PUMPS in operation at the various collieries under my charge—some of them employed pumping water out of our pits to the depth of 50 fms.—others employed in the pits, and a good many feeding Boilers. I have no hesitation in saying that we have found them the Cheapest and Best Pumps of the kind we have tried. I can with confidence recommend them to intending purchasers."

Messrs. BURT, BOULTON, and HAYWOOD, Chemical Manufacturers, of London, have FORTY of the "SPECIAL" STEAM PUMPS in use at their works.

HOLMAN'S CONDENSERS

Are made to suit any size and kind of Steam Pump. They form a part of the suction pipe of the Pump, and while they effectually condense the exhaust steam they produce an average vacuum of 10 lbs. per square inch on the steam piston, increasing the duty of the Engine, and effecting a saving in fuel of from 20 to per cent.

In Mining operations these Condensers will be of great value.

All Boiler Feeders are recommended to be fitted with these Condensers, as not only is the exhaust steam utilised in heating the feed water, but is returned with it into the boiler.

GREAT REDUCTION IN PRICES.

The following sizes are suitable for low and medium lifts:—

Diameter of Steam Cylinder ...In.	3	4	4	4	5	5	5	6	6	6	6	7	7	7	7	8	8	8	8	9	9	9	9	10	10
Diameter of Water Cylinder ...In.	1½	2	3	4	3	4	5	3	4	5	6	3	4	5	6	4	5	6	7	8	5	6	7	8	6
Length of StrokeIn.	9	9	9	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18	12	12	18	24	12
Gallons per hour	680	815	1830	3250	1830	3250	5070	1830	3250	5070	7330	1830	3250	5070	7330	9750	3250	5070	7330	9750	13,000	5070	7330	9750	13,000
Price of Special Pump ...£	16	18	20	25	22 10	27 10	32 10	25	30	35	40	30	35	40	45	50	40	45	50	55	65	50	55	60	70
Extra, if fitted with Holman's Condenser and Blow-through Valve	£7	£7	£9	£11	£8 10	£11 10s	£12 10s	£9	£12	£15	£15	£10	£13	£15	£16	£22	£13	£16	£16	£22	£22	£16	£16	£23	£24
Valve																									

CONTINUED.

Diameter of Steam Cylinder...In.	10	10	10	10	12	12	12	12	12	14	14	14	14	14	14	16	16	16	16	16	18	18	18	18
Diameter of Water Cylinder...In.	7	8	9	10	6	7	8	9	10	12	7	8	9	10	12	8	9	10	12	14	9	10	12	14
Length of StrokeIn.	12	18	24	24	18	18	18	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Gallons per hour	9750	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	30,000	9750	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000
Price of Special Pump...£	65	75	90	100	75	80	85	110	120	140	110	120	130	140	160	180	140	150	160	180	200	180	190	210
Extra, if fitted with Holman's Condenser and Blow-through Valve	£23	£24	£35	£35	£20	£27	£27	£38	£38	£50	£28	£28	£40	£40	£55	£55	£28	£40	£40	£55	£55	£45	£45	£56

Intending purchasers of Steam Pumps would do well to observe the great length of stroke, short steam cylinder, and short piston of the "Special" Steam Pump, as compared with the short stroke, long steam cylinder, and long piston of the Pumps of other makers, as the efficiency and durability of the machine, and the space occupied by same, greatly depend upon this. The advantage of long strokes will be obvious when purchasers are reminded that each set of suction and delivery valves of a "Special" Steam Pump with 24 in. stroke, running at 120 ft. per minute, would open and close only 30 times per minute, as against 120 times per minute in a Pump with only 6 in. stroke performing same duty.

The "Special" Steam Pump can be worked by Compressed Air as well as by Steam.

HUNDREDS of these PUMPS are USED for HIGH LIFTS IN MINES, for which purpose they are made with 21, 24, 26, 28, 30, and 32-inch Steam Cylinders, and 36 48 and 72-inch Strokes.

The following Testimonial gives one Example of the Power Gained by the action of Holman's Patent Condensers:—

NORLEY COLLIERY, WIGAN.

Messrs. TANGYE BROTHERS AND HOLMAN.

GENTLEMEN,—I have great pleasure in recording my entire satisfaction with the working of the Holman's Patent Steam Pump Condenser which you have supplied to us. The complete condensation of the steam is, apart from its value in the strict economic sense, a most valuable feature in the drainage of underground work.

inga. The perfect manner in which this important result is accomplished by your Condenser is extremely creditable to you, and merits the thanks and commendation of the Mining Engineer. When we start the "Special" Steam Pump the Condenser commences working automatically, and maintains a constant vacuum of 10½ lbs. per square inch, even when we run the Pump upwards of 80 strokes (106 feet) per minute. It may perhaps be interesting to you to know that when we were running the Pump at 84 strokes (168 feet) per minute, the steam gauge

indicating a steam pressure of 36 lbs. per square inch, 50 yards from the Pump and the Condenser vacuum gauge on the exhaust pipe indicating a steady vacuum of 21½ inches, I turned the exhaust steam from the Condenser into the atmosphere, when the speed at once fell to 44 strokes per minute. The working economy thus shown is really so great that the cost of the Condenser must be saved in a very short time. (Signed) J. THOMPSON.

NORTH OF ENGLAND HOUSE SOUTH WALES HOUSE...

TANGYE BROTHERS, ST. NICHOLAS BUILDINGS, NEWCASTLE-ON-TYNE. TANGYE BROTHERS AND STEEL, Tredegar Place, NEWPORT, Mon.; and Exchange Buildings, SWANSEA

THE DIVIDEND MINES OF 1878.

COMPILED AND CONTRIBUTED BY Mr. EDWARD ASHMEAD, LONDON MINE AGENT AND ACCOUNTANT, 62, CORNHILL, LONDON.

PARTICULARS OF THE BRITISH METALLIFEROUS MINES WORKED BY PUBLIC COMPANIES
WHICH HAVE PAID DIVIDENDS IN THE YEAR 1878.

Title of Mining Company.	Situation of Mine.	Year Company com- menced.	Ore sold in 1878.			Rate of dues.	Existing allotted Capital.			Total amount divided in dividends.	Dividends declared for 1878.								
			Description of ore.	Number of tons.	Amount.		Shares.	Paid.	Total.		Per share.	Total.							
					£ s. d.			£ s. d.	£ s. d.	£	£ s. d.	£ s. d.							
1. Caron Lead, Limited	Cardiganshire	1877	Lead † ...	—	—	—	8,000	2 0 0	16,000 0 0	1,238	10 p. cent.*	1,237 13 0							
2. Dolcoath, Cost-book	Camborne, Cornwall	1799	Tin ...	1539	55,902 15 8	1-20th	4,296	10 10 8	45,252 2 10	485,713	1 0 0	4,296 0 0							
			Copper ...	13	27 7 8														
			Arsenic ...	56	128 18 3														
3. East Pool, Cost-book	Illogan, Cornwall	—	Tin † ...	—	16,122 17 8	—	6,400	0 9 9	3,120 0 0	100,880	0 8 6	2,720 0							
			Tinstone ...	—	7,745 3 4														
			Copper ...	—	6,647 18 3														
4. Glasgow Caradon Consolidated, Limited	Cornwall	1860	Arsenic ...	—	1,670 0 0	1-18th	29,980	1 0 0	29,980 0 0	24,780	{ 0 0 6 0 0 4½ }	895 12 6							
			Copper ...	2562	9,848 17 11			7,797	0 15 0				5,847 15 0						
5. Great Laxey, Limited †	Laxey Glen, Isle of Man ...	1863	Silv.-ld. ...	1360	25,467 10 0		1-8th	15,000	4 0 0				60,000 0 0	363,750	1 12 0	24,000 0 0			
			Blende ...	8920	35,022 0 0	1-20th		{ 18,000 2,000 }	2 0 0	40,000 0 0	13,325	{ 0 2 10 0 1 3 }	2,575 0 0						
6. Grogwinion Lead, Limited	Cardiganshire	1872	Lead ...	1100	11,613 15 0												1-15th	20,000	6 0 0
7. Leadhills Silver-lead, Limited	Lanarkshire	1876	Pig-ld. ...	907	15,395 13 11		1-9th							400	18 15 0	7,500 0 0			
8. Lisburne, Limited §	Cardiganshire	1834	Lead ...	1982	21,537 11 0	1-14th		10,000	2 0 0	20,000 0 0	2,500	0 5 0	2,500 0 0						
9. Mellanear Copper, Limited	Hayle, Cornwall	1876	Copper ...	5710	18,065 0 0												1-24th	9,000	5 0 0
10. Minera, Limited	near Wrexham, Denbigh ...	1850	Lead ...	2754	28,683 16 0		1-11th							20,000	7 0 0	140,000 0 0			
			Blende ...	2735	10,566 5 0	Various		1,024	1 14 9	1,779 4 0	700	0 10 0	444 0 0						
11. Mining Company of Ireland, Limited...	Ireland	1824	Lead ...	1644	14,547 5 1												1-15th	{ 11,579 3,008 }	2 10 0
12. North Busy United, Cost-book	near Chacewater, Cornwall...	1871	Copper ...	541	—		17 p. ton on lead.							4,558	5 0 0	22,790 0 0			
			Tin ...	32	1,228 9 8	1-15th		10,533	2 0 0	21,066 0 0	1,571	0 3 0	1,571 8 0						
13. North Hendre Lead, Limited	near Mold, Flint	1870	Blende ...	142	597 2 7												1-15th	9,564	2 0 0
			Lead ...	310	478 19 11		1-12th							12,000	7 10 0	90,000 0 0			
14. Pennant Barytes and Lead, Limited ...	near Holywell, Flint	1875	Copper ...	200	1,853 0 0	1-18th		512	1 5 0	640 0 0	380,160	3 0 0	1,536 0 0						
15. Pant-y-Mwyn, Limited	Mold, Flint	1872	Tin ...	2093	23,444 15 0												1-24th	6,123	6 5 6
16. Red Rock Lead, Limited	Cardiganshire	1876	Blende ...	170	516 0 0		1-30th							4,500	7 12 4	34,275 0 0			
17. Roman Gravels Mining, Limited...	Shropshire	1870	Copper ...	6022	31,114 5 6	1-20th		12,000	3 0 0	36,000 0 0	4,264	10 p. cent.*	1,554 10 0						
18. South Caradon, Cost-book	St. Cleer, Cornwall	1835	Tin ...	846	31,364 19 6												1-14th	15,000	4 5 0
19. South Condurrow Mine, Cost-book ...	Camborne, Cornwall	1865	Blende ...	66	453 12 1		1-30th							600	—	19,000 0 0			
20. South Wheal Frances, Cost-book...	Illogan, Cornwall...	—	Copper ...	532	18,469 3 8	1-30th		512	95 10 0	48,896 0 0	16,896	7 15 0	3,968 0 0						
21. St. Harmon, Limited	Montgomeryshire...	1876	Tin ...	—	—												1-20th	1,024	18 0 0
22. Van, Limited	Montgomeryshire...	1869	Lead † ...	—	—		1-20th							3,000	7 11 0	22,650 0 0			
			Blende ...	5800	64,590 0 0	1-30th		512	95 10 0	48,896 0 0	16,896	7 15 0	3,968 0 0						
23. West Chiverton, Cost-book	near Truro, Cornwall	1863	Tin ...	2100	5,759 7 6												1-20th	3,000	7 11 0
			Lead ...	861	7,503 3 11		1-30th							512	95 10 0	48,896 0 0			
24. West Wheal Seton, Cost-book	Camborne, Cornwall	1844	Blende ...	3103	8,191 18 7	1-20th		3,000	7 11 0	22,650 0 0	2,250	0 15 0	2,250 0 0						
			Copper ...	2200	8,262 14 4												1-20th	3,000	7 11 0
25. West Wheal Tolgus, Cost-book	Illogan, Cornwall...	1860	Tin ...	240	8,361 19 11		1-20th							3,000	7 11 0	22,650 0 0			
26. Wheal Eliza Consols, Cost-book	near St. Austell, Cornwall ...	1861	Arsenic ...	200	773 6 7	1-20th		3,000	7 11 0	22,650 0 0	2,250	0 15 0	2,250 0 0						
			Copper ...	3747	22,313 3 0												1-20th	3,000	7 11 0
27. Wheal Pevor, Cost-book	Redruth, Cornwall	1872	Tin ...	485	16,592 3 7		1-20th							3,000	7 11 0	22,650 0 0			
			lvngs ...	—	1,509 6 6	1-20th		3,000	7 11 0	22,650 0 0	2,250	0 15 0	2,250 0 0						
			Arsenic ...	7	10 13 6												1-20th	3,000	7 11 0
					£542,966 14 7									£1,038,983 8 4	£3,823,979				

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.—No. CVIII.*

BY J. CLARK JEFFERSON, A.R.S.M., W.E.S.C.,
Mining Engineer, Wakefield.

(Formerly Student at the Royal Bergakademie, Clausthal).
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SECTION V.

The publication of these Lectures is unavoidably suspended for two or three weeks. They will then be resumed and continued regularly.

THE PLANTS OF THE COAL MEASURES.

Last week Prof. MIALI delivered a most interesting lecture at Barnsley on the above subject, illustrated by diagrams. He said wherever coal was found there still remained some parts of it as fragments of fossils, but the great difficulty was to make out what it originally was. They might get bits of foliage, stems, bits of roots, seeds, or fruit, which had to be put together and reconstructed. So imperfect were many of them that it was impossible for a long time to tell if they had ever existed as plants above the earth, or whether they had not possibly been formed in the rocks where they were found by some natural process similar to that which forms crystals. Some other plants, and especially the fern, were so perfect, and exhibited such beautiful outlines, that any serious question as to their being actual plants must be put on one side, though many eminent naturalists had given considerable consideration in trying to prove that they were once living plants, and what species they belong to. Among the gentlemen who had given especial attention to the matter the lecturer mentioned the names of ROBERT BROWN, Dr., now Sir JOSEPH BARKER; but the most satisfactory results had been arrived at by Prof. WILLIAMS, of the Owens College, Manchester, and who had recently addressed a Barnsley audience on a very similar subject. Before he attempted to describe any of the actual coal plants he would say a few words as to the method required in pursuit. They must try and find out what foliage such and such a stem belonged to, and what kind of fruit it bore. They would now and then find two kinds together side by side which it would be difficult to distinguish one from the other. Prof. WILLIAMS, by making a collection of these specimens, had been able to rectify the mistakes of his predecessors. Some of these fossil plants had been found in ironstone and limestone, and this was especially the case in some of our coal fields. If some of this sandstone were polished down very finely until it actually admitted the passage of light, they would be enabled to see the specimen it contained if it were placed on a microscope, specimens which were perfectly invisible to the naked eye. He could give them the names of different kinds of coal plants, but he proposed that night to confine his attention to the most important and most peculiar to the coal. He would take first the plant which is very common in the sandstone rocks of these and similar coal fields. Its outward appearance he had no doubt they were perfectly familiar with. They would see it was divided into a number of joints, and also had a number of rings running in the direction of the length from one joint to the other. This was the calamite. It was many years since the calamite was discovered. Older naturalists were in doubt as to its nature. They compared it to a great reed.

Before he attempted to describe the plant more fully he would like to remind them of some very familiar plants in the neighbourhood of Barnsley. They were principally found on railway embankments, in woods, in thickets, in marshes, and swampy ground. On examination there would be seen a jointed stem, and from each of the jointed stems was given off a cluster of leaves forming a wreath, while if they looked still closer they would find the leaves were jointed. At the top of some of these plants was a sort of capsule. The lecturer then went on to speak of the lepidodendron represented in his drawing. A plant very much similar to that was the club moss, which grew abundantly in the Yorkshire moors, and still more abundantly in Cumberland and in Scotland. It was not a moss at all, however; it was very different from the moss in many details. It was of a fair size; in fact, it could be ascertained what it was without the aid of a microscope. Some of the stems measured as much as 5 ft. long. The stem was covered with leaves, and these were narrow and pointed. Towards the end the leaves assume the peculiar aspect of forming spikes, and in these were laid spores; this was instead of the capsule. The spores, which consist of two kinds—the large and the small. The spores were commonly spoken of as seed. They were collected together every day for a commercial purpose, and a very important article of trade. They were brought over to England as a kind of powder for coating pills. They were also used in the manufacture of fireworks, and in certain dramatic pieces to produce the lightning. Suppose they were to take a little of this powder and strew it on the damp earth, in the course of a few weeks they would be able to distinguish on the surface of the mould a number of small green mosses, which would develop after a time into club moss. Let them examine some of the minute patches which were developed by the germination of the spores by the aid of a large magnifying glass and they would produce a number of risings, but the whole were so small that they could not be seen without a microscope. The small spores produced a scale, and on the scale were a number of risings or bulgings that produced spiral threads like the thread of a corkscrew. As long as these are kept wet they would keep moving for hours. As the thread kept moving about the process of fertilisation was going on. The lepidodendron very peculiarly, he had mentioned, was reproduced. After some further remarks the lecture was concluded by a vote of thanks to Prof. MIALI for his interesting address, and carried amid applause.

GEOLOGICAL SOCIETY OF LONDON.—The anniversary meeting of members was held yesterday (Friday) at Burlington House. The usual report was read, and the following medals and funds were awarded:—The Wollaston medal, to Prof. B. Sturdevant, of Berne; the Marchioness medal, to Prof. McCoy, of Melbourne; the Lyell medal, to Prof. E. Hebert, of Paris; the Bigsby medal, to Prof. Cope, of Philadelphia.

The following is the list of new office bearers:—President: H. C. Sorby, F.R.S.; Vice-Presidents: Sir P. de M. Grey-Egerton, Bart., M.P., F.R.S.; Prof. P. Martin Duncan, M.B., F.R.S.; Prof. J. Prestwich, M.A., F.R.S.; and Prof. A. C. Ramsay, LL.D., F.R.S. Secretaries: Prof. T. G. Bonney, M.A., F.R.S.; Prof. J. W. Judd, F.R.S. Foreign Secretary: Warrington W. Smyth, M.A., F.R.S. Treasurer: J. Gwyn Jeffreys, LL.D., F.R.S. Other members of Council: H. Bauerman; J. Clark Hawkshaw, M.A.; Henry Hicks, M.D.; W. H. Hudleston, M.A.; Prof. T. McKenny Hughes, M.A.; J. W. Hulke, F.R.S.; Prof. T. Rupert Jones, F.R.S.; Prof. N. S. Maskelyne, M.A., F.R.S.; J. Morris, M.A.; R. W. Mylne, F.R.S.; J. A. Phillips; Prof. H. G. Seeley, F.L.S.; Admiral T. A. B. Spratt, C.B., F.R.S.; and the Rev. T. Wilshire, M.A., F.L.S.

The President read a very interesting address, chiefly devoted to the origin and structure of limestones.

MANCHESTER GEOLOGICAL SOCIETY.—A meeting of members will be held on Tuesday, when the following papers will be read:—"Notes on some Triassic Borings," by C. E. De Ranee, of the Geological Survey, Assoc. M. Inst. C.E., F.G.S.;—"On the Advantages of Compressed Air at High Pressures (8000 lbs. and upwards per square inch) as compared with Blasting by means of Gunpowder or other Explosives," by Mr. Wm. E. Garforth.

Now ready, THE MINING JOURNAL, VOLUME FORTY-EIGHT, FOR 1878. Neatly bound and lettered, price 12s. 6d. To be had from our office, 26, Fleet-street, London, or through any newsagent or bookseller.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Berggrath Dr. von Gneiss, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

Original Correspondence.

DON PEDRO NORTH DEL REY MINING COMPANY.

SIR,—In addressing you last week I was not aware at the time of the immense richness of the lode for gold that had been cut into 2 fms. 3 ft. at the 40 cross-cut, and reported upon by Capt. Vivian, the manager, and the underground captain, dated Jan. 10 last, in which it is stated that two samples taken from the lowest point of the lode in the said cross-cut produced 53 grains, both samples weighing 13 or 14 lbs., containing about 19 ozs. of gold per ton of veinstuff, worth 64s. 12s. Now, I take it that with a lode 15 feet wide (and they had not up to the date above referred to cut through the full thickness of the vein), putting it at the very lowest estimate will produce 20 tons to the lineal fathom; this will make the lode worth 1300s. per fathom, the richest lode for gold ever discovered I should think; and as this mine at one time made a profit of from 8000s. to 10,000s. per month, with a much lower percentage of gold to the ton, what may we expect the profits to be in the future? probably double, and dividends must be resumed at an early date, as I understand that the new machinery for strengthening the 60-ft. wheel is in all probability now in place, thereby avoiding all hindrance to the continuous working and development of the underground operations in the future. If the permanent pumping machinery had been erected when first sent out some years since I feel confident the mine would not have ceased paying dividends, but during that time the water has covered the bottom levels, and the lode in the upper levels became exhausted, hence the suspension of dividends. My object in calling the attention of shareholders to these important features of the mine is to prevent them being misled, and induced to part with their shares by those who have no positive interest in the property, and in many instances exercise an influence on the market to suit their own individual purposes, and know nothing about the practical working of a mine, or the value of the reports even when they have read them.

PETER GOIFFON.

[For remainder of Original Correspondence, see to-day's Supplement.]

FOREIGN MINING AND METALLURGY.

In the Belgian iron trade the most interesting circumstance reported during the week has been an adjudication for nearly 6000 tons of iron sleepers to meet the requirements of the Belgian State Railways. The Thy-le-Château Works carried off the contract. The terms of the contract were 4s. 18s. 9d. per ton. The Acoz Company appears to have ranked second in the competition. Another adjudication for switches, &c., is to take place on Feb. 26. The Montigny rolling-mill, now owned by M. Delloye, has obtained an order for 1500 tons of iron bars for Russia. A metallurgical exhibition is to open shortly at Prague, under the auspices of a local society. M. Georges Chandoer has just purchased the Val Benoit Works at Liège, and proposes to devote them to the production of iron tubes. M. Chandoer established recently some works of this description in the neighbourhood of St. Petersburg, and his products were much remarked at the Paris Exhibition. MM. Carls Frères, of Gand, have just introduced the electric light at their works. The value of the plates, worked iron, pig, &c., exported from Belgium last year presented an increase of 482,360s. as compared with 1877. M. Daumy, a Belgian contractor, has just completed the Madrid and Cuidad Real Railway. The rails required for this line were for the most part furnished by the John Cockerill Company, and the rolling stock by the Dyle Workshops Company.

There is little to report with respect to the Belgian coal trade. Deliveries of domestic qualities of coal have almost ceased now the weather has become milder, and contracts for the glass and iron works are now being looked for with some anxiety. On the other hand, it would not, of course, be difficult to restrict production if it were necessary to do so. The movement of coal over the railways of Saxony experienced a considerable increase last year. The production of the Zwickan basin increased last year 6.11 per cent., and that of the Luga basin 6.55 per cent. The production of the Plauen basin experienced, on the contrary, a reduction of nearly 4 per cent. last year.

The Hollerich Blast-Furnaces Company, which produces 18,000 tons of pig per annum, has applied for a concession of 50 acres of mineral lands at Esch-sur-Alzette. The Northern of France Railway Company recently gave an order for 1500 axles to a Belgian establishment at Seraing; this establishment has in turn transferred the order to some works in the basin of the Loire. According to an estimate prepared by M. Jordan, director of the Marseilles Blast-Furnaces, 1 ton of Spanish minerals delivered at the works of Herr Krupp, of Essen, costs from 1s. to 1s. 10d. per ton. The same industrial estimates that with coke of good quality, not too dear, Bessemer pig can be produced at Essen at 2s. 12s. to 2s. 16s. per ton, and steel rails at 5s. 4s. per ton. Some representatives of Herr Krupp, when interrogated recently before a German commission of enquiry, declined to say what their cost of production was. The house of Schwab and Co., of Galatz, recently invited tenders for a supply of rolling stock required for the Roumanian lines. The orders which have been given out have been shared between the Dortmund Union and the Reebizza works.

There have been some enquiries for iron at St. Dizier, but scarcely any transactions of importance have been recorded. Coke-made iron has been neglected; the quotation is nominally 6s. 4s. per ton for iron rails, and 6s. 8s. to 6s. 12s. per ton for iron from coke-made pig. Mixed iron has sold more freely at 7s. 4s. to 7s. 8s. per ton; iron of slightly superior quality, almost equal to puddled iron from charcoal-made pig, is worth, according to the works, from 7s. 8s. to 8s. per ton. Rough axles have fallen to 8s. per ton, and even lower. There has been some demand for iron wire at St. Dizier. In the Nord order are more abundant than they were a month since. In the Loire-et-Rhône the iron market remains in a depressed state; there is very little doing, and the weakness of prices is increasing rather than otherwise.

Statistics of the contracts for the chief production of the German iron and steel industry show in a marked manner the change in demand from iron to steel rails. In 1873 contracts were given out for 58,560,000 kilos. iron rails, and in 1878 for 8,331,000 kilos. only. On the other hand, the contracts for steel rails offered in the former year were for 78,137,000 kilos. and in the latter 112,459,000 kilos.

SILVER MINING IN NEW SOUTH WALES.—Mr. Thomas Horton of the Boorook Silver Mines, appears to be making very satisfactory progress with their development; and, altogether, the information received monthly from that district is of the most astonishing character. A short time before Mr. Horton last wrote (Dec. 10) he had added a Wheeler pan to his silver saving appliances, and the result of his operations with the tailings or sludge with this is rather astounding—for instance, on the first trial with the new process from 10 cwts. of tailings mixed with salt and quicksilver, and at the end of the fourth hour run off into a tank with about 200 lbs. of additional quicksilver, &c., when it formed an amalgam, which when retorted yielded nearly 250 ozs. of silver, or at the rate of 500 ozs. to the ton. It may be remarked that 100 ozs. had previously on crushing the stone been taken from 1 ton weight, so altogether the yield was 600 ozs. per ton, and the whole of the silver was not secured. What appears to be now required is a few sound, practical metallurgists, and the employment of a little more capital to complete the plant, in order to make the enterprise a great success. In consequence of the important discoveries of the precious metals at Boorook, Mr. J. B. Graham, the warden in charge of the district, has visited and made an interesting official report upon it, in which, in detailing the character and value of the several reefs, he remarks that on the Woolshed and Alderman reefs (the latter is named after Mr. Alfred Alderman, Mr. Horton's professional prospector, by whom it was found, and who secured 30 acres) there have been several applications for leases; the reefs appear well defined, and are at present about 2 ft. wide. The whole country in this locality is intersected with reefs, at present untold. The stone from the reefs now opened—Woolshed and Alderman—show when burnt good silver. Very little work has been done—in fact, they have only just been opened sufficient to show the reefs. The Woolshed reef runs east and west, and the Alderman, although only distant about 200 yards, runs north-east and south-west. It is supposed the reefs meet. The Cornstalk reef is also about 2 ft. wide; the stone shows good silver on being burnt. Mr. Horton is at present crushing stone from the 50 ft. level on the Golden Age, a specimen of which stone the warden sends to head-quarters. In spite of the great loss of silver and partial treatment of stuff, the yield now averages over 100 ozs. of silver to twelve hours crushing. The

erting is attended with great difficulty; the road has been very bad, and there has been little or no grass until lately; in consequence of these and other drawbacks the machine does not average eight hours work a day, but during the last month or five weeks no less than 2800 ozs. of silver have been retorted, and sent away from this small machine.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the *Journal* on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1842), "Cornish Notes" (second series, 1843), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1845, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, based on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to four o'clock.

They also buy and sell shares for immediate cash or for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

D'ERESBY CONSOLS.—In reference to the Cobblers' lode an agent writes us that nearly 20 fathoms out of the 30, or the supposed distance to the Cobblers' lode, has been driven, and "there is here a good chance of having a mine of value in a short time—the open and extensive workings on the surface indicate this."

PARYS MOUNTAIN.—The same question has been frequently asked as to why a shaft was not sunk in the great open-cast instead of driving a long and expensive cross-cut to get under it, and the answer is this—several thousands of pounds were spent in attempting to sink a shaft, but the water destroyed all the pumps, just as in the pits it eats up the old iron thrown in, and forms copper precipitate, and as this water so impregnated with copper could only proceed from some vast deposit it speaks in strongest terms for the success of the 90 cross-cut, and when the ore is reached 20 fms. under the shaft it will be drained, and be of great service to the company.

We have seen it somewhere said that under the reconstruction scheme shares would cost existing holders 10s. each, which is not the case. The price to be paid present holders is 22,500s., in fully paid-up shares, and every shareholder, of course, would get his proportion, share for share, without any payment whatever. Thus a holder of 100 shares in the old would get 100 shares fully paid-up in the new by right; and it would be optional with him whether or not he took any of the capital shares. If he did so, the capital shares, would cost him 10s. each, but his average would be 8s. 8d., thus:—100 shares fully paid, free; 100 shares at 1s., 100s.; 100 bonus, free=300 shares for 100s., or 6s. 8d. each. A very large proportion of shares in the existing company, although called 3s. shares, were issued to the shareholders at 10s. each, or 2s. 10s. dis., and were only 4s. each when the reconstruction scheme was first mooted, and there will be no difficulty whatever in disposing of the capital shares, for already numbers of shareholders have applied for far more than their proportions; and now the 90 cross-cut is better understood, shares will be in demand.

POOR ORES, AND THE PARYS MOUNTAIN.—We were not aware at the Parys Mountain meeting on the 14th that a very important paper had been read at the Society of Arts on the 12th, and which, it appears to us, may have a very important bearing upon the company. The paper was by Mr. John Hollway, "On a Process of Rapid Oxidation, by which Sulphides are Utilised as Fuel." The experiments upon which the paper was based were attended by several smelters, and seemed to excite unusual interest. The principle seems to be, instead of allowing the sulphur to burn to waste, as in the usual processes for treating "cupreous" pyrites and poor sulphurets of copper, to utilise it as fuel, and the operation occupies a few minutes instead of weeks under old processes. One experiment, made in July last, on proto-sulphides containing 3 per cent. of copper yielded after a quarter of an hour's blow a regulus of 46 per cent. of copper.

The arrangement of the plan is to treat 300,000 tons a year, and he estimates 300,000 tons of not less than 1½ per cent. copper to produce under his process in the year 15,000 tons of 27 per cent. copper, equal to 4050 tons of copper at 60s. per ton, 243,000s. The sulphur he estimates at 216,000s., and a profit altogether of 165,000s. Now at Parys Mountain we believe we speak within the mark when we say we have nearly one million tons of poor ores at surface worth on an average more than 1½ per cent. for copper, and combined with sulphur. It is chiefly the water which percolates through this mountain of halvans that flows into the precipitate pits and eats up the iron. When copper was at a good price the present company used to dress 100 to 200 tons per month of these halvans by hand, and sell them at 1s. 10s. to 2s. per ton, but of late years they have not paid to dress, and have been left undisturbed, though several applications have been made for a large supply in connection with new processes for returning them. Should Mr. Hollway's process be established, and our ores suitable, we shall put ourselves in communication with that gentleman, and our halvans might be made worth 100,000s. even at 5s. per ton, and it would not be requisite to amalgamate with any other company for smelting works or anything else.

D'ERESBY MOUNTAIN.—At present none of the rich ores in the No. 4 stope, which at the time "dazzled the eyes" of beholders, and of which there was then supposed to be upwards of 1000 tons broken, have been brought to the crusher. The water-wheel went to work just as the first frost set in, and has been constantly interrupted and set fast, so that nothing more has been done than to crush, when possible, the poor ores from the top of the stope, and overlaying the best, which will soon be reached.

SATURDAY, FEB. 15.—Market active for Tankerville, Parys Mountain, Peavor, South Frances, Herodsfoot, and Morfa Du shares. Tankerville, 2 to 2½; Parys Mountain, 5s. to 10s.; Peavor, 7½ to 8; South Frances, 6½ to 7½; Herodsfoot, 3½ to 4½; Morfa Du, 17s. 6d. to 22s. 6d.; Van, 15 to 18; Great Laxey, 14½ to 15½; East Van, 1½ to 2½; Carn Brea, 27 to 29; South Condor, 10½ to 10¾.

MONDAY, FEB. 17.—Active demand for Parys Mountain, Morfa Du, Peavor, Herodsfoot, Tankerville, and East Van. Parys Mountain, 9s. to 11s.; Morfa Du, 20s. to 25s.; Peavor, 7½ to 8½; Herodsfoot, 3½ to 4½; Tankerville, 2 to 2½; East Van, 2 to 2½; Aberllyn, 10 to 12; South Frances, 6½ to 7½; Pateley Bridge, 15s. to 25s.; Roman Gravel, 6 to 6½; Tincroft, 7½ to 8½; Agar, 4 to 4½; Orebor, 7s. 6d. to 10s.; Glenroy Lead, 7s. 6d. to 12s. 6d.; Clementina, 1 to 1½.

TUESDAY, FEB. 18.—Market continues firm for Parys Mountain, Herodsfoot, Peavor, South Frances, and Morfa Du shares, and the following are quotations for the day:—Aberllyn, 10 to 12; Carn Brea, 27 to 29; Devon Great Consols, 1½ to 1¾; Dolcoath, 21 to 23; East Van, 2 to 2½; Glenroy (Lead), 7s. 6d. to 12s. 6d.; Great Laxey, 14½ to 15½; Herodsfoot, 3½ to 4½; Marke Valley, 5s. to 7s. 6d.; Leadhills, 1½ to 2; Morfa Du, 20s. to 25s.; Parys Mountain, 10s. to 12s. 6d.

The Llanawel Lead Mining Company

(LIMITED).

CAPITAL £30,000, IN 6000 SHARES OF £5 EACH.

£1 on application; £1 10s. on allotment.

Incorporated with Limited Liability under the Companies Acts, 1862 and 1867, by which the liability of the shareholder is strictly limited to the amount of his shares.

DIRECTORS.

Colonel ARTHUR NEED, J.P., Fountain Dale, Mansfield, Notts.
JAS. CROSSLAND, Esq., Longwood House, Fixby, Huddersfield.
J. HENRY OUTHWAITE, Esq., Bedford Park, Chiswick.

BANKERS—NATIONAL PROVINCIAL BANK OF ENGLAND, Lincoln's Inn, Carey-street, London.

SOLICITORS—Messrs. BLAKE AND WALL, 22, Surrey-street, Strand, London.

CONSULTING ENGINEER—R. J. FRECHEVILLE, Esq.

SECRETARY—JOSEPH J. OUTHWAITE.

REGISTERED OFFICES,—4, AGAR CHAMBERS, AGAR STREET, STRAND.

PROSPECTUS.

This company is formed for the purpose of acquiring the lease and plant of and for working the valuable mines, veins, lodes, and seams of lead and all other metallic ores in and under the farms and lands known as Talley Demesne, Penygarey, Cillynfawr, and Bwlchyrd, situated in the parishes of Talley and Llanawel, in the county of Carmarthen, and containing about 201 acres. The company have also taken other powers in the Memorandum of Association for more advantageously working the mines comprised in the said lease or under any adjacent lands.

The lodes of the mines are a continuation westward of the celebrated lodes of the Nant-y-Mwyn Mines, which have been worked to immense profit. The set is extensive, running about one mile from east to west, and the same extent north and south, and contains a number of well-defined lodes.

The property is held under lease, dated 16th November, 1878, for 21 years from Michaelmas, 1878. The yearly rental is £20, merging into a royalty at the low figure of 1-16th.

Plans, showing the exact position of the lodes, with reports by eminent and practical mining engineers, may be obtained, and specimens of the ore seen at the company's offices.

The mines are about seven miles from the railway stations of Llandilo and Talley Road, so that the produce can be conveyed thither at little expense. The projected railway from Llandilo to Lampeter will pass within a quarter of a mile of the mine, and will when constructed be of great advantage to this property. The extent of work already done may be seen from the plans and reports. It includes a deep adit level driven upwards of 250 fathoms, which effectually drains the mine, thereby saving the expense of pumping machinery. Two other levels have been driven above this. A shaft has been sunk from the surface connecting these levels. All these works have been done at a large expenditure. Judging from the quantity of ore the mines have already yielded, and the present existing defined lodes, together with the favourable reports of experienced mining engineers, it is confidently anticipated that with a further moderate outlay in the erection of necessary machinery, and for further development, the mine will be productive and profitable.

The services of Mr. R. J. Frecheville, Associate of the Royal School of Mines, who has had ten years practical experience of mining, both at home and abroad, have been secured as consulting engineer for the company.

The vendor has agreed to dispose of his interest for £15,000, of which £1000 is to be paid in cash, upon transfer, and £1000 by instalments—viz. one moiety in six months and the other in twelve months. The balance in paid-up shares of the company, which shares shall not be transferable until a dividend of 5 per cent. has been paid to the ordinary shareholders out of profits, nor until 1000 other shares shall have been applied for and allotted.

The only contract entered into on behalf of the company is dated 23rd December, 1878, and is made between John Henry Outhwaite of the one part, and Alfred Stephen Groom for and on behalf of the company of the other part, being the con-

tract for the purchase of the property and plant, which, together with the Articles of Association, may be seen at the offices of the company.

Applications for shares may be made to the bankers on the form enclosed in the prospectus, or to the Secretary of the company. Should no allotment be made the deposit will be returned without any deduction; and should a smaller number of shares than those applied for be allotted to any applicant the balance of his deposit will be applied towards the amount payable on allotment.

Prospectuses and forms of application for shares may be obtained at the offices of the company, or of the bankers.

No promotion money whatever will be paid. The preliminary expenses will be confined to the amount actually expended in the formation and registration of the company.

EXTRACTS FROM THE REPORTS OF WELL-KNOWN MINING ENGINEERS.

Capt. JOSEPH EVANS, in his report, dated April 11, 1878, says:—There are four lodes, running nearly east and west. I would recommend you to open the engine-shaft to deep level, where you will find a branch of lead ore yielding 3 tons per fathom. I have seen in the stopes 14 in. of solid lead. The mine bears evidence for itself, and only requires a little time to make it one of the most profitable in Wales.

Also, Capt. W. HANCOCK, in his report, dated Nov. 30, 1878, says:—In my opinion you will be amply remunerated for your outlay (for further information see plan and section recently made). A great feature is the mine can be worked at a considerable depth without the aid of pumping machinery.

R. J. FRECHEVILLE says:—I visited your Llanawel Mines, near Talley, South Wales, and found that you had in your No. 4 level a vein showing 4 in. of lead. As this is at a depth of not more than from 15 to 20 fms. below the surface, and the hill rising above you gives a large quantity of backs, I consider it to be an exceedingly favourable prospect. In the No. 2 and No. 3 levels there are at least two other veins; from their appearance and the general character of the ground, I am of the opinion that they will amply repay further explorations. The No. 1 or deep adit will drain these mines for some years to come, and thus obviate the necessity of erecting pumping machinery. The kills which form the country rock, and the elvan course which is in close proximity to your mines, are favourable indications of this class of mine. The other conditions of working are favourable. I think from what I have seen that you have a valuable property.

Capt. W. T. BRYANT, in his report, dated Dec. 20, 1878, says:—You have in this mine a valuable property, and from appearances I am of opinion that it will justify the outlay of capital for development, and well worthy the consideration of capitalists as a good investment. I have confidence in recommending it as such.

2, Suffolk-lane; G. Macdonald, 5, Belsize Park; A. Kitchener, 18, Albert Mansions; G. Newington, Lower Sydenham.

SILVERDALE LAND AND HOTEL COMPANY (Limited).—Capital 15,000*l.*, in shares of 10*l.*. To purchase certain lands and buildings situated at Lindeth and Silverdale, Lancaster, known as the Britannia Hotel and lands adjacent, together with the licenses and goodwill of the hotel, furniture, &c., and to carry on the business of an hotel keeper. The subscribers are—J. Bayley, Liverpool, 20; S. J. Harris, Lancaster, 20; H. J. Walduck, Silverdale, 20; W. C. Yates, Carnforth, 20; A. Darbyshire, Manchester, 5; E. Marshall, Manchester, 5; W. W. Hadfield, West Gorton, 1.

NORTHERN MERCANTILE STEAMSHIP INSURANCE ASSOCIATION.—The mutual insurance of steamships, in which the members are interested as owners, part owners, mortgages, agents, or otherwise. The subscribers are—D. G. Pinkney, Sunderland; J. Barwick, Sunderland; J. H. Calliford, Sunderland; F. Gordon, Sunderland; J. Horan, Sunderland; J. Sanderson, Sunderland; J. Tryford, Sunderland.

NATIONAL FINE ART COMPANY (Limited).—Capital 40,000*l.*, in shares of 10*l.*. To purchase the business, paintings, photographs, plant, stock in trade, patents, &c., described in an agreement between C. Lewinger and Frederick Mansfield of the one part, and Andrew Glendinning for the company, and to carry on and develop the business. The subscribers are—C. Lewinger, 5, Hart-street, 75; J. Glaisher, F.R.S., Blackheath, 20; J. Norton, 24, Old Bond-street, 20; A. Wright, M.D., Edinburgh, 50; A. Lombardi, 13, Pall Mall, East, 50; J. T. Taylor, Wood Green, 5; A. E. Reade, Upper Norwood, 20.

HULL AND HESSE TRAMWAY COMPANY (Limited).—Capital 15,000*l.*, in shares of 5*l.*. To lay down, construct, and maintain a tramway from Hesse, in the county of York, to Dairycoates, in the parish of Newington, in the same county, and all necessary and convenient branches in connection therewith. To lay down, construct, and maintain such other tramways as the shareholders shall determine. The subscribers are—David Wilson, Hull, 20; Joseph Dalton, Hull, 10; M. Samuelson, Hull and Hesse, 20; B. O. Webb, Hull, 20; T. Reynolds, Hull, 30; W. Croft, Hull, 20; James Gough, Hull, 5.

THE MADRAS ICE MANUFACTURING COMPANY (Limited).—Capital 50,000*l.*, in shares of 10*l.*. To manufacture and sell throughout the Presidency of Madras artificially made ice, and refrigerating and cooling machines. The subscribers (who take one share each) are—J. Sinclair, 48, Blackfriars-street; H. W. Spratt, 16, George-street; T. P. James, Macclesfield; B. Dick, 38, Threadneedle-street; J. Saul, 52, Lombard-street; R. Towrie, 144, Leadenhall-street; G. P. Armstrong, Liverpool.

R. J. PORTEUS AND COMPANY (Limited).—Capital 5000*l.*, in shares of 5*l.*. To take up the business founded by Mr. Porteus, and to purchase from the trustees the plant, stock-in-trade, &c., at 1 and 2, Cross-street, Newcastle-on-Tyne, and to carry on the business of publishers, booksellers, stationers, &c. The subscribers are—J. Tocker, Wallsend, 4; T. Watson, Gateshead, 10; W. Kerr, Gateshead, 2; T. Graham, Tynemouth, 6; R. J. Porteus, Gateshead, 20; A. Redshaw, Newcastle, 1; J. Dogherty, Newcastle, 2.

EMERSON AND COMPANY (Limited).—Capital 3000*l.*, in shares of 1*l.* each. The purchasing, leasing, or otherwise acquiring of any mines, mining ground, quarries, or deposits of limestone, chalk, clay, or other minerals in the United Kingdom or elsewhere. The carrying on the business of builders, contractors, miners, plasterers, manufacturers of tiles, bricks, &c. The letting, sub-letting, selling, and exchanging any mines, minerals, works, &c., belonging to the company, and the purchasing and working of any patent rights. The subscribers (who take one share each) are—F. E. T. Woodfall, Edmonton, accountant; R. H. Gibbons, Shepherd's Bush, gentleman; J. H. Kennett, East Dulwich, gentleman; E. W. Gallagher, Peckham, teacher of music; B. Humphrey, 31, Throgmorton-street, accountant; Thomas Munn, Leyton, clerk; T. Tuer, Leyton, clerk.

Messrs. FIDLEY AND ABELL.—GOLD: There is no demand for bar gold for the Continent, and the withdrawals of sovereigns from the Bank, which since the 15th inst. have amounted to 80,000*l.*, have been for the Cape and Monte Video. The arrivals during the week have been large, and comprise 654,036*l.* from India and Australia, and 12,670*l.* from the Brazil. The Bank has already received 537,000*l.* of these amounts, and the remainder will also be sent in. The Nile takes 8550*l.* to the West Indies.—SILVER: has gradually recovered from the depression of last week, and orders for the Continent and India have been executed at slightly better rates. The improvement in the price of Council Drafts yesterday had an effect on fine silver, which to-day again moved upwards, and the nearest quotation was given 50*½*d. per oz. The P. and O. steamer leaving to-day takes 80,600*l.* to India. The arrivals during the week have been about 30,000*l.* chiefly from America.—MEXICAN DOLLARS: The arrivals have been about 30,000*l.* from America; the demand has been good for China and the Straits, and prices have improved to 48*½*d. per oz. The steamer leaving to-day takes 87,288*l.* to the East.

Mining Correspondence.

BRITISH MINES.

ABERYLLY.—John Roberts, Feb. 19: Setting Report: The No. 2 adit to drive north, by four men, at 12*l.* per fathom; level to be carried 7 ft. high. The lode to cut through behind this end, by four men, from the level to the hanging wall, or 8 ft. wide, at 12*l.* 12s. per lineal fathom. The lode to cut through from the cross south, and from the level to the hanging wall, by two men, at 7*l.* per lineal fathom. The value of the lode in these bargains is as uniform as can be for blends, but the second is producing a great deal more lead than I have seen in the mine before. It is difficult to state what the real value of the lode is, being so large—from 12 to 14 ft. wide; but without giving an over estimate, I would say 10 tons of blends to the fathom, with a fine prospect for lead. The winze at No. 1 level, to sink by two men, at 12*l.* 12s.; the lode is looking much the same as in No. 2 level. We shall nearly finish erecting the crusher this week, and I hope that we shall get the water wheel together next week, and in another month we shall be closing up pretty well.

ASSHETON.—Joseph Garland, Feb. 19: There is no change to notice in the pitches at Lindore, Gundry's, and Mawr shafts; they are all yielding ore, and keeping the dressing floors well supplied with stuff. The ground in the 20, south of Mawr, is a little easier for driving. Dressing is going on regularly. To-day we have sampled about 30 tons of lead ore for sale on the 28th inst.

BETWYS-Y-COED.—H. T. Haley, Feb. 19: The lode in the 20 end, driving east, is improving in character and value, worth about 15 cwt. of lead per fathom, and, looking at the lode in the deep adit just over this point, will, I think, further improve. In the deep adit in the rise from this level the lode is looking well, and will produce from 15 to 20 cwt. of lead per fathom for length of rise—8 ft.—and will come up where there is a good lode in the shallow adit. The cross-cut in this level has been hard, and slow for driving, but it is a little easier at present, and there are indications of a change. I am pleased to say that we have started our dressing machinery, which is doing excellent duty; we have cleaned some tons of lead, and put to bin, which will be added to daily, and hope to get a parcel ready for sale in about three weeks. The shaftmen will complete cutting ground for flat in shaft this week, and will then get up the shears, so as to get the rods and pitwork in the shaft at once.

BLAEN CAELAN UNITED.—J. Pell, Feb. 20: The very heavy rain and thaw together have brought more water into the mine during the past fortnight, so that we have only to-day been able to get down the water in the shaft to the back of the 50; to-morrow I hope it will be all out, after being in 10 weeks. In next week's report I shall be in a position to describe the value east and west from the 30. All other points without change.

J. Pell, Feb. 21: Telegram: Water out last night.

BLUE HILLS.—S. Bennetts, P. Bennetts, Feb. 15: The north lode in the 30 east end is 2*½* ft. wide, and worth 10*l.* to 12*l.* per fathom. Two stopes in the back of this level are worth respectively 8*l.* and 6*l.* per fathom. The sinking of the Blue Burrow shaft continues much as last reported.

BODILY.—H. Hotchkiss, Feb. 19: In extending the cross-cut south from the top of the rise in the 60, on Maes y Fwll lode, we have been meeting with solid lumps of lead ore in the soft part of the lode until yesterday, when the lode became much firmer. Before following on this soft part of the lode in way of proving it, I have ordered the men to continue on the cross-cut in order to get to the heading of the lode, which will take about 7 ft. further to drive, when I expect to meet with a much better lode than has already been seen. The character of the lode in the 45 east is much the same in appearance as it was last week: still a bold promising lode of a fair average size, embedded in good mineral ground still bearing the same appearance. I am pleased to say we have gone through the hard bar of ground we have had in the new shaft sinking under this level, for some time, and have come down on a bed of shale; the lode as yet is small, which, however, was the case in the 45 just over this bed of shale, but was found much stronger underneath it, and I fully expect to find it so here and of a richer character. We shall now be able to make better progress in the sinking. The engine and all other machinery are in good working order.

CAMBRIAN.—Thomas Glasville, Feb. 15: Engair Fraith: I am glad to say the mine is again clear of water, and all our underground operations are once more being proceeded with. In the eastern shaft below the yard level the lode is at present looking better than at any time during the sinking of this shaft. In the south part of the shaft we have a rich leader of copper ore 1 ft. wide. In the 70 yard level, east of eastern shaft, the copper part of the lode when last taken down would yield at least 3 tons per yard. We shall take down the lode again on Monday next. In the 45 yard level, west of eastern shaft, we have lead between 2 and 3 ft. wide, which will produce 1*½* ton per yard. The stopes above the 70 yard level, west of eastern shaft, will yield 1 ton of lead ore per yard. We have cross-cut north through the lode from the 45 yard level, east of eastern shaft, 10 ft., without as yet meeting with the north wall.—Engair Hir: We are at present cutting south from the deep adit level to intersect the main part of the great lode.

CLEMENTINA.—J. Roberts, W. Sandoe, Feb. 19: The masons will finish the wheel-pit to-day, and to-morrow they will commence building the landing for the bob on the top of the shaft, and all other work is being pushed on as fast as possible. We have commenced crushing and dressing the lead, which is turning out very well.

COMBAMARTIN.—T. Comer, July 20: Good progress is being made in the various points of operation in the mine, but little or no change has taken place in either of them during the past week.

DE BROKE.—J. Phillips, Feb. 19: The mine is clear of water to the 45. We commenced drawing ore out on Saturday and crushing on Monday, and now that the dressing is actively going on I hope to have a few tons of ore in the bin by the end of the week.

DENBIGHSHIRE CONSOLIDATED.—R. Prince, A. Francis, Feb. 28: The tributors' bargain in the 60 west has further improved, and good lead is being obtained therefrom. In the driving east of the 80 the lode is improving, and I believe we are close to a valuable body of lead here. We wish you would let us put out a cross-cut from Quaker's shaft to intersect this lode further east, as we are satisfied it is one of it not the master lode of the property, and ought to afford us lasting returns. The lead ground in the 80 is quite as valuable as previously reported, and as soon as our new wire rope is attached to the engines (as previously reported) we shall send to surface some splendid lead ore. The favourable change in our eastern level continues, and if we are not close to a great discovery here we shall be much deceived. There is a rib of ore and spar reaching from the roof to the floor of the level. Never in our experience has the mine looked so promising as at present.

DERESBY CONSOLS.—J. Roberts, W. Sandoe, Feb. 19: We have set the end driving towards Cobler's lode, to six men, at 10*l.* per fathom. There is no change in the lode.

DERESBY MOUNTAIN.—J. Roberts, W. Sandoe, Feb. 19: Setting Report: No. 1 adit set to two men, at 9*l.* per fathom, for 1 fm. The lode seems to have improved in appearance, showing very strong spots of lead and blende, and getting to be very wet. No. 2 adit set to two men, at 9*l.* per fathom; the lode is very much the same as last week, disturbed by the influence of the east and west lode, but we expect from its appearance that it will soon change, as it did at the same point No. 1. The rise in No. 3 is set to four men, at 15*l.* per fathom for 1 fathom. The lode is still large and kindly in appearance. The Gorse shaft set to six men, at 9*l.* 10s. per fathom, to hole to the rise from No. 4, which we expect to be completed in a fortnight. The rise from No. 4 to Gorse shaft, to two men, at 4*l.* 18s. per fathom. We have erected the horse pulley on the No. 3 shaft on No. 5 adit, and shall be making now good progress in clearing towards Gorse shaft. We are now getting into the better stuff at the stope at No. 4, and shall in consequence make better progress in getting the sampling ready. The dressing machinery is working quite satisfactorily.

EVON GREAT CONSOLS.—Isaac Richards, Feb. 20: Wheel Emma—Inclined Shaft: In the 137 eastern shaft, the lode is at present looking better than at any time during the sinking of this shaft, and is composed of both mundle and copper ores. In the 47 west the lode is 4 ft. wide, and worth 2 tons of copper ore or 6*l.*, and 3 tons of mundle per fathom.—New Shaft: New South Lode: In the new shaft sinking is being continued on the north side of the shaft to facilitate sinking, and good progress is being made. In the 190 east the lode continues of large size, 5 ft. of which being carried is composed of capel, quartz, peach, prlan, and copper ore, worth 7 tons or 20*l.*, and 8 tons of mundle per fathom. In the 190 west the part of the lode being carried is 5 ft. wide, composed of capel, quartz, and copper ore, worth 1 ton or 3*l.*, and 8 tons of mundle per fathom, and promises improvement. In Hookaday's winze, in bottom of the 190 west, the part of the lode being carried is 5 ft. wide, composed of capel, quartz, peach, prlan, and copper ore, worth for the length of winze, 9 ft., 4 tons or 12*l.*, and 6 tons of mundle per fathom. In the 175 west the lode is 3*½* ft. wide, composed of capel, quartz, and copper ore, worth 2 tons or 6*l.*, and 3 tons of mundle per fathom. In Floyd's winze, in the 175 east, the lode continues of large size, 5 ft. of which being carried is composed of capel, quartz, peach, prlan, and copper ore, worth for length of winze, 9 ft., 4 tons or 12*l.*, and 6 tons of mundle per fm. In the rise (Hookaday's) in the back of the 175 west the lode is 4 ft. wide, composed of capel, quartz, peach, prlan, and copper ore, worth for length of rise, 9 ft., 4 tons or 12*l.*, and 4 tons of mundle per fathom. In the 130 east the lode is 3 ft. wide, composed of capel, quartz, mundle, and a little copper ore. In the railway shaft, below the 160, the lode is 2 ft. wide, composed of capel and quartz, with a small quantity of both mundle and copper ores.

DUBBY SYKE.—W. Vipond, Feb. 15: There is no change in the vein here in driving east from the rise in the limestone; it remains quite unproductive for ore; in fact, it just continues about the same as it was where the rise was put up last.

EAST CARADON.—J. Kellow, Feb. 19: To sink the winze below the 150, on counter lode, 2 fathoms stent, by six miners and three labourers, at 25*l.* per fm.; it measured 1 fm. 2 ft. 1 in.; the lode is 1 ft. wide, composed of quartz, peach, and mundle, with a little ore intermixed; ground without change. The 150, on counter, to drive west 5 fms. stent, by six men, at 4*l.*; it was driven 5 fms. 5 ft. in very favourable ground; the lode is about 9 in. wide, composed chiefly of peach and quartz, with occasional stones of ore. The stope in the back of the 90 is yielding 1*½* ton of ore per fathom. We have four tribute pitches working by elst at 15*l.* in 12 ft.

EAST VAN.—W. Williams, Feb. 20: The cross-cut north at the end of the 25 west has been extended 28 fms. through the lode into the country rock. I am sorry to say that we discovered nothing of value in this cross-cut, nor anything worth driving upon on the course of the lode; so I have to-day stopped driving any further. We are pushing forward the 25, east of engine-shaft, with full dispatch, in order to try the eastern ground, and prove the ore ground going down on the bottom of the adit.

GAWTON COPEER.—G. Rowe, G. Rowe, jun., Feb. 15: The lode at the 117 cross-cut is improving both in character and value, with fine stones of ore; altogether a very kindly appearance, but not sufficiently developed to describe its value, which will require a few feet further driving in the same direction, consequently we purpose to increase the staff at this point to open up the lode without delay. The lode in the 105, west of cross-cut, is 5 ft. wide, with an improved appearance, yielding mundle and ore to the value of 5*l.* per fathom. The lode in the stope below the 105, west of winze, is showing a good appearance, and worth 10*l.* per fathom. The lode in the stope at the same level east of said winze is worth 10*l.* per fathom. The stopes in back of the 105 is worth 8*l.* per fathom. In other points are without change.

GLASGOW CARADON CONSOLS.—William Taylor, W. J. Taylor, Feb. 15: In the 102 cross cut south we have cut a small branch or two, with some ore, but have not yet cut the lode. In the 90 we passed a branch or two before we reached the lode; the ground is of a favourable character, but rather wet and troublesome for driving; we are pushing this cross-cut as fast as possible. In the 90 east we

Registration of New Companies.

The following joint-stock companies have been duly registered:—

CANADA GOLD COMPANY (Limited).—Capital 15,000*l.*, in shares of 1*l.*, 8000 of which will be issued with coupons, entitling the respective holders to be repaid the amount actually paid upon each such share, by periodical drawings from one quarter part of the net profits of the company, and the balance of 7000 shares shall be issued as fully paid up shares, to be allotted in part payment of the purchase money. To acquire certain mines, minerals, lands, working plant, &c., mentioned in two several agreements, the first made between John Batters of the one part and Frederick Truman Bennett on behalf of the company, and the second between W. Perfect Lockwood, of St. Francis Beance, Canada, of the one part, and F. T. Bennett, on behalf of the company, and to carry into effect the terms of such two agreements. The acquiring, by purchase or otherwise, of any other mines, mining property, mining rights, lands, buildings, plant, &c., in Canada or elsewhere. To mine, work, raise, win, get, and reduce gold, silver, and other ores, minerals, &c., and otherwise develop the lands, mines, and mineral properties of the company. To purchase and sell minerals and metals of all kinds, and to prepare them for the market. The subscribers (who take one share each) are—W. Hops, 57, Park-road, Wandsworth, surveyor; Thomas W. Martin, 32, St. Swithin's-lane, clerk; E. Schubert, 32, St. Swithin's-lane, accountant; E. R. Gabbutt, Stock Exchange, sharedealer; F. F. Powell, Stock Exchange, sharedealer; Robert Rowell, 3, Austinfriars, stockbroker; Adam Scott, 14, Elgin-crescent. The directors shall not be less than three and more than five, of which the Gilbert and Chaudière Gold Fields Company (Limited) shall have the right to nominate one director, so long as the company hold the premises mentioned in the agreement, and W. P. Lockwood shall be a director; with these exceptions the first directors shall be appointed by the subscribers to the Articles of Association—qualification of each director to be at least 100 shares.

TINYBERTH AND CORRISS VALLEY SLATE QUARRY (Limited).—Capital 50,000*l.*, in shares of 10*l.*. To adopt a contract whereby J. G. Nolan for the company agrees to purchase a lease or under lease of certain rights of working and extracting slate from land forming part of the Tinyberth estates, in the county of Merioneth, and to work the veins of slate, ores, and mineral produced by quarrying, mining, and the manufacture of slate, slabs, and other minerals therein, by selling the same, and generally to carry on the business of quarries and miners in all its branches. The subscribers (who take one share each) are—E. W. Knapp, 8, George-street, bank secretary; W. A. White, Talbot Villa, Lee, merchant; J. W. Burrows, 47, Fleet-street, publisher; T. C. Dyer, 10, Bush-lane, architect; J. B. Rogers, 27, Clement's-lane, engineer; John Cox Rathbone-place, clerk; W. H. Manning, 73, Newman-street, clerk.

LYRIC, MUSICAL, AND ARTS CONSERVATORIUM AND NORMAL TRAINING COLLEGE COMPANY (Limited).—Capital 5000*l.*, in shares of 1*l.*. The purchase of the goodwill of the Lyric, Musical, and Arts Conservatorium and Normal Training College, situate at 7, Clydesdale-road, Colville-square, at 30, Burlington-road, Bayswater, and at 1 and 2, Sussex Villas, Upper Twickenham, and to carry on the work attaching to same. The subscribers (who take ten shares each) are—V. Vernside, 86, Chippinham-road; S. Nosede, Peter's Park; W. T. Russell, 44, Norland-square; J. J. Anderson, 30, Burlington-road; A. D. de Divigree, 7, Clydesdale-road; Paul Bayard, 44, Circus-road; L. Fontenay, Paris; F. A. Joseph, Paris.

BRITISH AMERICAN FRESH FOOD IMPORTATION COMPANY (Limited).—Capital 5000*l.*, in shares of 10*l.*. The purchasing and importing fish, poultry, and other food produce in Newfoundland and Canada, and selling and disposing of same. The subscribers (who take one share each) are—E. E. Scott, 11*½*, Union-court; Thos. Roberts, Aspland Grove; K. Jones, 11*½*, Union-court; J. Perfumo, 39, Lombard-street; W. E. Davies, 11*½*, Union-court; H. D. Mytton, 5, Bond-court; H. Philbrick, 18, Austinfriars.

GRIGUALD WEST RAILWAY AND WATER COMPANY (Limited).—Capital 250,000*l.*, in shares of 100*l.*, capable of sub-division. To apply for and work concessions for the construction, maintenance, and working of railways, tramways, telegraphs, and waterworks in Griguald West or any other of the South African colonies or dependencies of the United Kingdom. The subscribers (who take one share each) are—D. P. Blaine, 2, Suffolk-lane; A. J. Macdonald, 2, Suffolk-lane; W. D. Byrie, 15, Stratford-place; J. W. Anderson,

NEW ZEALAND.—The following extract is from "Brett's Auckland Strangers' Vade Mecum and Provincial Handbook for 1879":—"Coromandel was the first gold field proclaimed in the provincial district of Auckland, having been opened to the miner in 1854. There are miles of auriferous country surrounding the harbour of Coromandel open for exploration. The principal claims on the field are the Union Beach, New Golden Pa, Premier, New Zealand Kapanga, Golden Point, Eureka, Clunes, Corby, the Tokatea, Bismark, Royal Oak, Pride of Tokatea, Long Tunnel, and Harbour View. The Tokatea range is 1200 feet above the sea level. The New Zealand Kapanga Mine is owned by an English company, who took up the ground in the year 1872, and commenced mining on an improved and extensive scale under the management of Captain

James Thomas. This company has expended some 30,000l. in the sinking of a large engine-shaft over 300 feet, and driving a long tunnel at that depth to drain the water from the works which were mined so successfully by the original proprietors, erecting improved engines of the most powerful class, with large pumps attached for drainage to 1000 ft. deep, and a battery of 15 stampers completed and at work. At the 300 ft. cross-cut drive, where the reef was struck, a main winze has been sunk on the underlie of the reef, which dips at an angle of 45°. The depth attained below this level is 110 ft., where drives are extended on the course of the reef north and south. From the bottom of the drive, at the lowest depth attained—410 ft.—a patch of very rich specimen stone was obtained, and the reef here averages about 4 ft. thick, conclusive evidence that the old run of gold is not only going down, but that the reef is also making much wider and richer, and the prospects are amply sufficient to warrant the shareholders in sinking the shaft to a further depth of 300 ft."

TO THE METAL TRADE.

FOR COPPER, TIN, LEAD, &c., apply to—
MESSRS. PELLY, BOYLE, AND CO.,
SWORN METAL BROKERS,
ALLIHALLOWS CHAMBERS, LOMBARD STREET, LONDON.
(ESTABLISHED 1849.)

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, FEB. 21, 1879.			
IRON.	2 s. d.	2 s. d.	2 s. d.
Fig. smn. f.o.b., Clyde.	2 3 6		
" Scotch, all No. 1.	2 4 0	3 5 0	
Bars, Welsh, f.o.b. Wales.	4 15 0	5 0 0	
" " " " " "	5 2 6	5 7 6	
" Stafford.	6 5 0	7 0 0	
" In Tynes or Tees.	5 5 0	5 10 0	
" Swedish, London.	8 15 0	9 0 0	
" Ralls, Welsh, at works.	4 15 0		
Sheets, Staff., in London	7 15 0	8 5 0	
Plates, ship., in London	6 12 6		
Hoops, Staff.	6 15 0	7 5 0	
Nail rods, Staff., in Lon.	5 15 0	6 10 0	
STEEL.			
English, spring	13 10 0	10 0 0	
" cast	30 0 0	40 0 0	
Swedish, keg.	15 0 0		
" bar.	15 0 0		
LEAD.			
English, pig, common	13 5 0		
" " " "	13 10 0		
" " " "	14 0 0		
" sheet and bar.	14 5 0		
" pipe	14 15 0		
" red	15 15 0		
" white	23 15 0		
" patent shot	17 10 0		
Spanish	13 0 0		
NICKEL.			
Ore, per cwt.	19 0 0	20 0 0	
Metal, 10 per cent. per ton.	24 0 0	26 0 0	
QUICKSILVER.			
Flasks of 75 lbs., ware.	6 5 0		
SPELTER.			
Silesian	15 10 0	15 15 0	
English, Swansea	16 0 0		
Sheet zinc	20 10 0		
At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1s. 6s. per box more than 10 quarts above, and add 5s. for each 1/2 ton—plates 2s. per box below tin-plates of similar brands.			

REMARKS.—The metal market has not yet shown any symptoms of improvement, and there is consequently now every prospect of the first two months of this year passing away without any general revival in trade being brought about; but as the shipping season approaches a better feeling may be looked for, and, perhaps, enhanced prices realised. But on account of the present season being unusually rigorous it may be later than ordinary before any increase in business occurs, so it can hardly be expected that the ensuing month will bring forth any considerable augmentation in the number of orders beyond its two predecessors. There can be no possible hope of any recovery taking place in price as long as the supply is in excess of the demand, and the existing depression ought to be sufficient warning to producers to regulate their supplies in accordance with the limited requirements of the market. If a favourable impression were to be made on stocks there would undoubtedly be greater buoyancy in the market, and enhanced quotations would probably follow in a shorter space of time than is generally stipulated, as the accumulation of stocks at the present time is one of the principal drawbacks to the progress of the market. There is still a great want of confidence amongst consumers, but this is partly occasioned by the large stocks and heavy arrivals which are continually being reported, and if a sensible reduction were to be made in them there is little fear but that a thorough restoration of confidence would take place amongst most buyers throughout the trade. By this time it must be pretty evident to everybody that a diminished production is the only means by which relief can be obtained, and producers and importers ought now to be able to see the absolute necessity of reducing supplies, for if they continue in the same manner as hitherto to increase stocks it will soon be found that the present low prices will be succeeded by still lower rates, and the market will be so over-supplied that sellers will certainly be forced to make further concessions, and which will only cause past losses to be increased.

But if, however, producers will regulate their supply according to the demand then there will be no fear of any further depreciation taking place, and there will be more chance of securing profitable transactions, and after a while when business has once again been properly started sellers may gradually raise quotations considerably above what they now are, and thus be enabled in some measure to recoup themselves at least a portion of their past losses. Buyers also on their part should be careful not to delay too long in effecting their purchases, for although at the moment it does not appear that very much higher quotations will rule for some time to come yet eventually when an actual diminution in stocks takes place purchasers will undoubtedly find themselves placed at a considerable disadvantage if they have not effected their purchases during the present period of cheap prices. The course of the market is still enveloped in too much obscurity so speak in any very decisive terms yet awhile, but notwithstanding the surrounding gloom there is a very hopeful feeling prevailing that a good time is coming, and the utmost patience is being exercised in the full expectation of a happy and glorious future.

COPPER.—With the announcement of heavy charters, and an increase in stocks for the first fortnight of the present month, it could not well be expected that anything else than a reduction in price should take place. The charters have been reported at 2300 tons, being the same quantity as last advised. The stock of copper (Chilian and Bolivian) in first and second hands is estimated at about 27,576 tons, against 27,090 tons on the 31st ult. The total imports of all kinds of copper into this country for last month are reported at 9025 tons, which shows an excess of about 4500 tons compared with 1877, and about 5000 tons in excess of last year, and the exports amount to 3308 tons, against 5200 tons in 1878, and 4277 tons in 1877—or, in round figures, about 1500 tons less than last year. These unfavourable statistics tend in every way to confirm our previous remarks, and to show the absolute necessity of reducing production, for no sooner were the charters made known than prices for Chili bars fell 10s. per ton; a few sales were effected at 51s. per ton. The price telegraphed over with the charters was 51s. 25s. against 51s. 45s. for the previous fortnight, and the exchange remains unaltered at 38s. 3/4. The depreciation in the value of this metal is very great, and it is difficult to see how much cheaper copper will become before it has reached its minimum value. As stocks are so large, and there is evidently as yet no falling off in the supply, it is impossible for higher prices to rule, and it is greatly to be hoped that supplies will be very considerably cut down until such a time as the existing stocks are considerably diminished. The market has very much disappointed the expectations of the principal operators in this metal, and for the moment there cannot be any relief forthcoming, for more unfavourable statistics have not been issued for some time past, and it seems most extraordinary that, notwithstanding the reduction in price, a larger production is going on, and the standing rule of low prices checking supplies has altogether failed to produce its usual effect. The market will, therefore, probably sink to a still lower level before an effectual blow will be struck against this excessive supply.

All financial facilities and accommodation for the working and increasing the store of this metal should be curtailed, and mining and other copper companies should be left to their own resources; for when they begin to find their credit seriously affected it will probably put a stop to their reckless proceedings, and make them act more cautiously for the future. To obstinately persist in maintaining excessive supplies in the face of overwhelming stocks and diminished demand is perfectly suicidal, and about as mad an act as can be committed by any inmate of Bedlam. Some time since we announced that the Wallaroo Company had suspended operations at the Wallaroo Mine, which would reduce the company's production from 8000 tons to about 5000 tons—we now have reliable authority for stating that preliminary instructions have been forwarded to cease working the Mooma Mine, and stop the entire production. This is most commendable on the part of the company, and it is sincerely hoped that this very prudent step in the present depressed state of the market will be speedily followed by similar action of other companies.

IRON.—This metal continues dull of sale, and prices still assume a downward tendency. Business has been transacted this week at lower rates than what have been known for many years, and yet the minimum is not considered to have been reached. The demand for iron seems to have abated, and it is not altogether unaccountable, as there are two or three solid reasons which naturally effect a change in the position of the metal. The curtailment in the consumption and

shipments arises, not only from the additional foreign competition, but also from the very important fact that in numerous instances, and for the chief purposes for which iron was formerly used, steel is now substituted. A permanent change, therefore, must necessarily be effected in this metal, as steel rails now being found to be far more serviceable than those of iron, there is not likely to be any renewed demand for iron rails, but, on the contrary, steel will be used more extensively in a variety of other ways, and, perhaps, in course of time, may altogether take the place of iron; and the cheap rate at which steel can now be produced will facilitate this change, and will lead sooner to the extinction of iron than it would otherwise have done. Before the Bessemer process was discovered, and when the prices of steel were so much higher than they are now, the demand was comparatively of an extremely limited character, and steel rails were then only being tried as an experiment, and, like many new inventions, had to overcome strong prejudices, and required time to prove their advantage over iron. But as soon as the cost of production could be lessened, and brought within a reasonable mark, they gradually grew in favour; but that which brought them more prominently before the notice of railway companies than anything else was their durability, and, consequently, a great saving in labour; and, as the labour question during the past few years has been a perpetual source of worry, annoyance, and inconvenience, it became a matter of the utmost importance to substitute anything and everything that would in any way economise or dispense with labour.

Now that steel rails have had a fair opportunity of being tried and tested, and pronounced to be superior in every respect to those of iron, it is perfectly evident that iron rails are for ever doomed, and only in very rare and exceptional instances will they ever again be required. As in rails, so we verily believe it will be in most other things which are now made from iron; and as we have before observed, steel plates and hoops are getting into common use, and these will, no doubt, in a little time be followed by various other articles. Under these circumstances, a revival in the iron market is of a very doubtful character, as the improvements hereafter to be made will probably be more in that of steel, owing to the more general attention now given to that metal. If malleability can be combined with durability, it will doubtless in a short time altogether supersede iron, especially as it can now be produced at an equivalent cost. It is more in the common sort of iron, such as Welsh and East Coast, that reduction in price seems most necessary. Although the present price of iron is comparatively low, yet it has been known to rule at a lower rate; for it is recorded that in the summer of 1843 merchant bars temporarily reached to 4l. 10s. per ton. Now, if the cost of production could be brought down then so as to enable masters to accept so low a price, why should it not now be reduced to the same level? Producers should look well to this, and bring down all their expenses quite as low as they were then, as this 10s. or 15s. reduction in price would probably bring out many orders, and perhaps fill and regular employment to the several mills. But makers appear to be labouring under the impression that reduced prices would not bring forth any extra demand, and that the depression is chiefly owing to the late crisis in affairs generally. Although, perhaps, this may be, and certainly is, a great impediment to the progress of the market, yet when the Board of Trade Returns are taken into account, it must be pretty evident that this is not the whole drawback that is retarding business so much; for the imports are comparatively so very large that there can be little doubt but that a great portion of the iron consumed in this country is manufactured elsewhere, and export merchants have, we might almost say, been forced to introduce foreign iron to their customers; and as it has given satisfaction abroad, many orders which would have been given to English works continue to come over stipulating for Belgian iron. So while our ironmasters have been suffering from want of orders, makers on the Continent have been enjoying a fair share of orders, and are more likely to continue to do so while they are able to produce at a less cost than our own works are willing to do.

As regards pig-iron, it has been sold in previous years at about 35s. per ton, whereas Scotch is now quoted at about 43s. In this particular description of iron there is room for a fall of some shillings per ton, not only on account of the reduced prices quoted for manufactured, but also on account of the competition of Middleborough, and the excessive quantity in stock, there being in public store over 1,000,000 tons, besides that which remains in makers' hands. The various reports from our several iron districts are of a most discouraging and uninteresting character, for they show the extreme quietude which prevails at all the works, and the great distress which is felt throughout the country. From Barrow-in-Furness it is reported the demand for pig-iron is very limited, and the business done in other descriptions is of a most trifling character. Stocks continue large, and while this is the case higher prices cannot be expected to rule. The iron shipbuilding is also said to be quieter. No revival whatever is expected for some time at Barrow, and the work at this producing part of the country appears to be very badly off for work; and the same remark stands good for the mills at Darlington, for great dullness is observed in this district, though no change has taken place in prices. There is very little to be reported from Wales, though it is thought a slight improvement has occurred, nevertheless the mills continue in most cases very imperfectly employed, and prices show considerable weakness.

The markets at Middleborough are said to have shown very little variation, prices continuing as last quoted. No 3 pig-iron is obtainable at 33s., and No. 4 forge at 6d. per ton less, but buyers appear to be very loath to pay even these low rates, and are doing all in their power to buy on more advantageous terms, but without much success. The shipments of pig-iron to Scotland are said to have somewhat increased, the average quantity being over 6000 tons. The manufactured trade keeps dull, and anything but promising. Ship-plates are procurable at 5l. 5s., and angles from 2s. 6d. to 5s. per ton less. Boiler-plates are quoted at 6l. 5s., and common bars at 5l., and puddled bars at 3l. 7s. 6d. to 3l. 10s. per ton. The warrant market at Glasgow slightly improved last week, Friday's price being 42s. 9d. cash, and on Monday business was done at 42s. 10s. 6d. cash, and at 43s. one month. On Tuesday, however, sellers were offering as low as 42s. 10s. 6d. cash.

For the week ending Feb. 15, 1879	Tons	7,272
For the week ending Feb. 16, 1878		5,722
Increase		1,550
Total increase for 1879		5,470
Imports of Middleborough pig-iron into Grangemouth—		
For the week ending Feb. 15, 1879	Tons	5,710
For the week ending Feb. 16, 1878		5,290
Increase		520
Total decrease for 1879		5,947

FURNACES.

In blast Feb. 15, 1879..... 87
In blast Feb. 15, 1878..... 87
Tin.—The market for this metal has formed a slight exception to all the others, and towards the latter part of the week has shown some symptoms of improvement in price. Yesterday's quotations for foreign being 60l. 5s. to 60l. 10s. per ton, and to-day 60l. 10s. to 60l. 15s. per ton. The arrivals at the beginning of the month were very heavy, but as far as can be ascertained it is believed that the deliveries are very satisfactory, and holders are again hopeful that a substantial revival has taken place, for although stocks may show an increase at the end of the month, yet it is rather expected that future supplies will be much less than hitherto. The shipments from Australia have not exceeded our estimate, and those from the Straits will probably show a marked falling off in succeeding returns, as it is the shipments would not have been nearly so heavy as they have been had it not arisen from exceptional causes, and the market is now in a fair way of lasting recovery. English tin advanced 20s. per ton.

LEAD.—There is very little change in the state of the market for this metal, and prices for common pigs have become somewhat easier, a few sales having been reported as low as 13l. per ton. The shipping trade is almost lifeless, and merchants appear quite unable to pay even the very low prices now ruling, and there will probably be little or no improvement in prices until a sensible reduction be made in the supply.

SPELTER remains dull, and prices show an easier tendency.

STEEL continues without change.

QUICKSILVER.—The demand is slack, but importers have refused offers at 6l. 2s. 6d.

MESSRS. HARRINGTON, HOBAN, AND CO. (LIVERPOOL).—Arrivals here during the fortnight of West Coast S.A. produce—Liguria, from Valparaiso, 200 tons bars, 100 tons ingots; Emily Walters, from Molleudo, 500 tons ore; Cieta, from Caldera, 300 tons bars; Santa, from Valparaiso, 540 tons bars, 150 tons ingots. At Swansea.—Capricorn, from Carrizal, 523 tons regulus; Arctic, from Toconilla, 657 tons ore, 256 tons regulus.

THE MINING SHARE MARKET has been moderately active this week, with a good demand for a few prominent shares, such as South Frances, Wheal Pevor, Parys Mountain, Herodsfoot, Morfa Du, Don Pedro, Santa Barbara, and a few others.

TIN is firmer, and the advices from Australia are more favourable for English tin. The depression has told its tale there, and the production in the Northern tin fields, and also in New Zealand, is said to have become almost a dead letter. The stock in both places, according to Sydney advices, is small, and unless a recovery in price takes place soon miners will have to abandon the pursuit, and are not likely to return to it again.

South Frances have been in good demand, and leave off 7 1/2 to 8 1/2. The mine is said to have sold 20 tons of tin for the week, and is looking remarkably well on the great flat lode. Wheal Sisters, 8 1/2 to 9; at the meeting, on the 12th, the accounts showed a debit balance of 3387l. 11s. 1d., and a call of 1l. per share (805l.) was made. These mines combine the well known old sets of Wheal Mary Trencom, Wheal Kitty, and Wheal Margaret, and from Aug. 29 to Feb. 12 sold 271 tons of tin for 8856l. 3s. 10d. Upwards of 500 persons are employed in the mines, the prospects of which are reported as never better than now. Wheal Pevors advanced to 8 1/2, and in good demand. At the Botallack meeting the accounts showed a loss of 157l. on the quarter, and a balance against the mine of 2386l. On twelve months' working the loss has been 235l. only, and the mine is said to be looking well. Wheal Agar, 4 to 4 1/2; Wheal Grenville, 2 1/2 to 3. South Condarrow are not so firm at 10 to 10 1/2. Carn Brea, 2 1/2 to 3; Dolcoath, 2 1/2 to 2 3/4; East Pool, 8 1/2 to 9; Penrynthal, 1s. 6d. to 2s. 6d.; Tincroft, 7 1/2 to 8 1/2; West Basett, 2 1/2 to 3; West Frances, 1 1/2 to 1 3/4; Wheal Jane, 1 to 1 1/2.

COPPER MINES are quiet, and, with the exception of Parys Mountain, scarcely any business doing in them. At the Cornish Ticketing, on Thursday, there was no alteration in the standard for ores. The

quantity sold realised 3l. 1s. per ton on the average. At a public meeting in Cornwall last week one of the speakers referred to the fact that the production of copper in Cornwall is only 1-10th of what it was a few years ago; then it exceeded two millions sterling, now barely 200,000l.

Devon Great Consols, 1 1/2 to 1 3/4; the sale of ore here on Thursday realised 1518l. 15s. 6d. for 800 tons. South Caradon, 50 to 60; the sale here, 450 tons, brought 1710l. 17s. At the meeting in Cornwall the accounts showed a profit of 158l. on the quarter's working, and a balance in favour of the mine of 2891l., but no dividend was declared. The ores for the three months realised 7554l., and but for the low price would have given a good dividend. Marke Valley, 5s. to 7s. 6d.; the sale realised 1244l. 7s. 6d. Wheal Crebor not quite so firm, at 7s. 6d. to 10s.; one or two points are not looking quite so well this week. At the sale of ore on Thursday 130 tons realised 318l. 17s.; a considerable advance on the last sale. Parys Mountain advanced to 10s. 6d., and leave off after a large business 8s. to 10s. More sulphur is showing itself in the 90 cross-cut south, which is considered a good sign. Morfa Du, 1 to 1 1/2, fully paid; the last instalment of 2s. 6d. per share having become due. West Tolgus, 30 to 32; Mellanear, 4 to 4 1/2; West Seton, 6 to 8.

LEAD MINES show no particularly new feature. Some of the old mines are flatter, and quotations for the most part are merely nominal. Dressing operations have been sadly interfered with for the last eight weeks, or more, and although lead is very low just now the stocks on hand are small, and any sudden demand would cause a rise. Vans are weaker, at 14 1/2 to 15; the 120 west is improving. Great Laxey, 14 to 15; East Van, 1 1/2 to 2; Roman Gravel, 6 to 6 1/2. At Ladywell the sale on Saturday will be 40 tons. Tankerville, 1 1/2 to 2 1/2; the report is more favourable, but the ore has sold very low. West Tankerville have sampled 25 tons. Bettws-y-Coed, 1 to 1 1/2; Glenroy, 7s. 6d. to 12s. 6d.; Glyn, 10s. to 12s. 6d. Aberllyn, 10 to 12; the agents this week estimate the lode to be worth at least 10 tons of blende per fathom, with fine prospects for lead. Herodsfoot, 3 to 4; the 205 has improved to 18 cwt. per fathom. Leadhills, 1 to 1 1/2; Mineral Corporation, 10 to 11; Pateley Bridge, 20s. to 25s.; West Pateley Bridge, 1 1/2 to 2 1/2.

Rooplehoe, 2s. 6d. to 5s.; South Roman Gravel, 1s. 6d. to 2s. 6d.; Van Consols, 10s. to 12s. 6d.; West Chiverton, 20s. to 30s. Wye Valley, 2 to 2 1/2; this mine has sampled 30 tons of lead for the 24th. Red Rock, 1 1/2 to 2 1/2; the sampling here is 40 tons. West Wye Valley, 1 1/2 to 2 1/2; Caron, 1 1/2 to 2 1/2; Frongoch, 2 to 2 1/2; Grogwinion, 2 to 2 1/2; Hartington Moor, 1 1/2 to 2; D'Eresby Mountain, 30 to 40; D'Eresby Consols, 6 to 8; Clementina, 1 to 1 1/2.

FOREIGN MINES.—Cape Copper, 28 to 29; Chontales, 7s. 6d. to 12s. 6d.; Colorado, 1 1/2 to 1 3/4; Don Pedro, 18s. to 20s.; Eberhard and Aurora, 3 1/2 to 3 3/4; Exchequer, 2s. to 4s.; Frontino and Bolivia, 2 1/2 to 2 3/4; Javali, 4s. to 6s.; Last Chance, 6s. to 8s. Santa Barbara, 37s. 6d. to 42s. 6d.; the advices this month show a profit of 985l. 0s. 7d. The gold returned, 4735 oits., is estimated to realise 2012l. 7s. 6d., at a cost of 1027l. 6s. 11d. The report altogether is very promising for further increased profits. Placerilla, 2 1/2 to 2 3/4; sinking has been resumed below the 400; the quartz continues good. New Zealand Kapanga, 3 to 5; New Quebrada, 1 1/2 to 1 3/4; Panulcillo, 20s. to 25s.; Pestarens, 3s. to 4s.; Port Phillip, 10s. to 12s. 6d.; Richmond, 9 1/2 to 10 1/2; St. John del Rey, 265 to 275; Rossa Grande, 1s. to 3s.

The Market for Mine Shares on the Stock Exchange continues as last reported—there is a fair amount of quiet business doing, although there is nothing approaching general activity; but yesterday afternoon's Bank Return being again highly favourable, the fullest confidence is expressed that a general improvement has fairly set in. The low price of metals continues to be referred to by the timid as a reason for still leaving projected enterprises in abeyance; but those who are supposed to be well able to judge of the feeling existing among capitalists consider that these are now fully convinced that the fall in the price of labour and materials makes it quite as easy at the present time to realise, with economy and judgment, good profits with the present quotations for copper, tin, and lead, as it was in 1872 and 1873 with the better prices then obtainable, but which were almost entirely absorbed by the necessary outlay for materials, especially coals, and in satisfying the demands of the workmen. It will be remembered that for many years large profits were realised from the extraction by the humid process of the copper contained in the sandstone at Alderley Edge, but upon the expiration of the 21 years' lease, and owing to some technical difficulties, no renewal was obtained, and operations were suspended. It is now proposed to renew the lease and reopen the works, and as there are neither mining nor chemical obstacles to the obtaining of large quantities of copper at a price which would leave a fair margin at present prices, the undertaking is considered to be well worth a trial.

The failure of the attempt to float the Old Telegraph (Utah) Mine of the Paris market was noticed a fortnight since, when Colonel Berton's letter to the Minister of Finance was also referred to. The matter is thus tersely noticed by the *Credit National*:—

Mine d'Argent de Bingham.—L'argent qui en viendra n'est pas encore fondue. Quelle mine! La lettre du colonel Berton à M. Léon Say est foudroyante. C'est un coup de tonnerre. Tous les membres du Conseil en ont sauté en l'air. On parle de démission. Saura-t-on peut-être la disparition de la prime. Bingham!... sont de plus en plus synonymes. Avions-nous raison de conseiller les rentes d'Etat, de préférence aux rentes d'Utah?... Ce n'est pas avoir de veine!

The advantage of rock-drills as compared with hand drilling is clearly shown in the report of Messrs. John Taylor and Sons, presented at the meeting of the Halkyn Level Mines Drainage Company, on Thursday. During the six months 448 yards have been driven, the average speed being 74 yards (37 fms.) per month. The greatest advance was made during January, when no less than 87 yards (43 1/2 fms.) were driven. These results confirm the high opinion they have already expressed of machine drilling. It is to be regretted that the kind of drills used is not stated.

New Zealand Kapanga, 3 to 5; the advices to hand by the mail this week will be found in another column. The yield of gold per ton of quartz crushed continues exceedingly large, and this speaks well for results if the mine were properly developed.

St. John del Rey, 265 to 275; the latest advices, dated Morro Velho, Jan. 18, state that the month's return of produce, though higher by 2040 oits., compared with that for November, is far short of the amount for the corresponding month of last year. With the full supply of water available at this period of the year a larger gold return might reasonably be looked for, but at the present low rate of stamping, of which mention was made in the report for last month, both tonnage and produce are proportionately lower. Both the average yield per ton for the month and that for the third division is very favourable considering the poor mineralised character of a proportion of the stone treated, the yield per ton for this latter period (6-9 oits.) being the highest divisional return for the year. For a closer separation of the gold contents continued efforts are being made. At the Herring stamps, after a lengthy series of experiments, an increase of .016 oits. per ton has been obtained by a better distribution of the crushed and sand passing over the newly extended strakes. Don Pedro North del Rey, 1 1/2 to 1; the Mine Captain's report (Jan. 18) states that the ore derived from the bottom of the mine has been greatly depreciated by an intermixture of debris, caused by the water being repeatedly and washing down debris from the back and side laths since our last, this occurring in consequence of the repeated stoppages of the 60 ft. wheel for repairs. Very little done in the 40 cross-cut since last advised, owing to the defective state of the 60-ft. wheel requiring repairs daily. Samples taken from the lode in the end when the water in fork fully maintains its auriferous value, Santa Barbara, 1 1/2 to 2 1/2; the mine captain's report states that the average quantity of ore raised per ton for the month 37-2 tons, or per hole bored 0-744 tons. Respecting the gold tax, the directors have satisfaction in reporting that the Assembly of the Province of Minas Geraes has recently passed a law reducing this tax (which came into force in April last) from 4 per cent. on the produce of the gold to 2 per cent. on the profits of the mine; and the directors hope that this impost, which they believe to be unconstitutional levied by the provincial authorities, will before long be entirely abrogated.

Richmont, 9 1/2 to 10 1/2; the usual telegram from the mines at Eureka, Nevada, states that the week's run was 367,000, from 1205 tons of ore. During the week the refinery produced 340,000. The manager's report (Jan. 29) states that operations are going on with their usual regularity. The 1000 ft. level has been drifted 21 ft. without any material change. The chambers are looking well, and turning out of ore of fair grade. The furnaces are doing good work; the No. 3 furnace smelted yesterday 70 tons of ore. All the machinery is in good working order.

Sierra Buttes, 1 1/2 to 2; ditto Plumas Eureka, 2 1/2 to 2 3/4; the January working showed at Sierra Buttes total receipts, \$17,863; total working expenses, \$12,322; outlay on improvements, \$880. The mills were frozen part of the month. At Plumas Eureka the

total receipts were \$13,150, and the total working expenses, \$23,837. The clean-up at the Original Amador Mine for January is estimated at \$6500.

The market for Hydraulic or Gold Washing shares has been better, showing more activity. The latest advices from California speak of exceedingly heavy snow storms, causing sanguine expectation of a good season. Blue Tent, 2½ to 2¾; from a telegram which appears in another column it will be seen that washing has commenced for the season. Birdseye Creek, ¾ to 1; the latest advices announce the commencement of washing, with good prospects. Placerville, 2½ to 2¾; the sinking of the shaft below the 400 has been resumed, and it is now 18 ft. down. The driving of the 400 north is being pushed on steadily. The quartz continues good, and will pay well as soon as crushing commences.

The Jupiter Deep Blue Gravel (formerly the Railroad, Bully, and Buckeye) Hydraulic Mining Company has issued a prospectus, with the report of Mr. Windsor A. Keefe, who states that in the whole course of his experience as a miner he has never seen such promise of rich developments as those held out by the Jupiter Deep Blue Gravel Hydraulic Mining Company. The title of this property is guaranteed to be perfect, United States patents applied for. The mining property is now open for inspection, and a careful examination of its merits will fully bear out the statement he has made of its value. With an excellent climate, an abundance of timber, and a railroad within 23 miles, its resources can be easily made available. It is within 12 hours' travel from San Francisco; white labour can be obtained at rates of from \$2 to \$2.50 per day; and, with prudent and skilful management, he is convinced that this favoured property will produce almost fabulous returns for the comparatively small capital required for its development. The company is incorporated under the laws of California, with a capital of \$5,000,000, divided into shares of \$50 each. Ten thousand have been placed on the market, and \$250,000 called up on them. The property is in the Hawkeye mining district, Calaveras County, California State.

Lead mine shares, with one or two exceptions, have been dull, but there has been no general change in quotations. The reported rise in the price of lead at New York is likely to have a favourable effect. Van, 14 to 15; there is no alteration reported from the mine this week, except that the 120 west is showing signs of improving in value.

Mineral Corporation of Great Britain, 10 to 11; there is nothing new to report from the mine this week. The rock drill trial, to which reference was made in last week's Journal, is looked forward to with much interest, as the two months' run at racing speed with two excellent drills will make an important difference in the extent of the workings, and will permit of extra men being put to work without delay.

Fongoch, 2 to 2½; everything at this mine is going on well; the new perpendicular shaft is approaching completion, and will be finished by the end of March. The tributors are getting a lot of lead, a fair quantity being now ready for market, and is being constantly increased. A lot more men will shortly be put on to go, ore. Grogwinion, 2 to 2½; the mine continues to look well, especially in the deep workings. Dressing operations being now resumed, sales will again commence at an early date. Wye Valley, 2 to 2½; the mine is again free from water, ore dressing has been resumed, and a parcel of 30 tons of lead has been shipped for sale on Monday next. Prospects underground still good.

West Wye Valley, 1½ to 2½; the water is now drained to the 40, and the mine expected to be in work in a few days, when active operations at all points will again commence. Prospects are considered very cheering; all the new capital has been subscribed, and no time will be lost in pushing on with the works. Red Rock, 1½ to 2½; a parcel of 40 tons of lead is to be sold on the 28th. Mine still opening out very satisfactorily at all points. Caron, 1½ to 2½; the frost having gone the manager has been able to push on ore dressing, and a fresh parcel will soon be ready for market. Mine looking well. Lisburne Syndicate (fully paid), 16 to 18, cum div.

Cwm Brynno shares are quoted 2 to 2½. The new machinery will shortly be erected, when they will be able to commence dressing the silver lead ore now at surface. They anticipate being able to pay a handsome dividend about July. The issued capital being very small it will not require a large profit to enable them to do so. The prospects are described as unsurpassed by any mine in Cardiganshire. Rhydalwn: The shares in the new company are 10s. each fully paid, and are quoted 1½ prem. The mine is reported to be making large and increasing monthly profits even at the present price of lead, and will, it is said, pay the proprietors good dividends. It is considered to promise equally brilliant results as its neighbour, the celebrated North Hendra, which is working at a clear profit of 10 per cent. per annum.

British Silver Lead, 2½ to 3; the agent reports that the sinking of the eastern shaft is progressing favourably. The vein is now 3 ft. 6 in. wide, and worth fully 2½ tons of silver lead ore and 1 ton of blende per fathom. The men are busy washing the ore, which will leave a profit, even at the present low prices, and as soon as the machinery is erected for crushing, &c., from 80 to 100 tons of ore stuff can be treated.

Hartington Moor, 1½ to 2; the weather is very severe, but notwithstanding fair progress is being made. Mawston, 1½ to 2; the Wendley Hill level is improving driving east, and contains a very nice promising lead in the end. This level has passed through a great deal of very productive ground in which some capital stocks can be started, and prospects were never better than now. Pateley Bridge, ¾ to 1; the 30 east on Rake Vein is again opening out with every appearance of another rich course of ore. The sump winze below this level is now down 4 fms. from this sinking. Upwards of 50 tons of dressed ore has been raised; other parts of the mine unchanged.

Subjoined are the closing quotations:—

Ashton, ¾ to ¾; Carn Brea, 20 to 20; Devon Consols, 1½ to 1½; Dolcoath, 22 to 24; East Caradon, ¾ to ¾; East Van, 1½ to 2; G. Enroy, ¾ to ¾; Glyn, ¾ to ¾; Great Laxey, 1½ to 1½; Leadhills, 1½ to 1½; Marke Valley, ¾ to ¾; Parys Mountain, ¾ to ¾; Pateley Bridge, ¾ to 1½; Pevor, 8 to 8½; Penrith, 1½ to 1½; Roman Gravel, 6 to 6½; Rookhope, ¾ to ¾; S. Francis, 8 to 8½; Tankerley, 1½ to 2½; Tincroft, 8 to 9; Van, 14 to 15; West Ashton, ¾ to ¾; W. Basse, 2½ to 3½; Wheel Crebor, ¾ to ¾; 7th. Grenville, 1½ to 2½; Almada and Tinto, ¾ to ¾; Birdseye Creek, ¾ to ¾; Blue Tent, 2½ to 2¾; Cape Copper, 28 to 29; Chontales, ¾ to ¾; Colorado United, 1½ to 1½; Don Pedro, 13 to 15; Eberhardt and Aurora, ¾ to ¾; Exchequer, ¾ to ¾; Flagstaff, ¾ to ¾; Frothingham and Bolivia, 2½ to 2½; Hultafell, 2 to 3; I.L.L. ¾ to ¾; Javali, 3 to 3½; Kibbings, ¾ to ¾; Kapanga, ¾ to ¾; Last Chance, ¾ to ¾; New Quebrada, 1½ to 1½; Pateley Bridge, ¾ to 1½; Placerville, 2½ to 2¾; Pumas Eureka, 1½ to 1½; Port Phillip, ¾ to ¾; Richmond Consolidated, 9½ to 10½; St. John del Rey, 25 to 27½; San Pedro, 1½ to 1½; Sierra Butte, 1½ to 2; South Aurora, ¾ to ¾; United Mexican, 2½ to 3½.

At the Truro Ticketing, on Thursday, 2250 tons of copper ore were sold, realising 6098½ 5s. The particulars of the sale were—Average standard, 85½ 13s.; average produce, 63; average price per ton, 31.1s.; quantity of fine copper, 161 tons 19 cwt. The following are the particulars:—

Date	Tons	Standard	Produce	Per ton	Per unit	Ore copper
Jan. 28 1878	486	0	69½	£2 19	811½d.	£41 10 6
Feb. 6 1111	85	0	74	3	8	44 10 0
20 2250	85	13	69½	3	9 3½	46 11 0

Compared with the last sale, the standard is stationary.

With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence; Dreadful Mining Accident in Chile (W. A. Walker); Australian and Tasmanian Tin Ore (D. Stevens); Flagstaff Silver Mining Company of Utah (A. Kerly); Richmond Mining Company; Colorado United Mining Company; The Tharwa Sulphur and Copper Company; Sources of Power; Surface Condensers (W. Nance); British Mines—Interesting Notes; Is it Right to Pay any Purchase-money for Mines? Promising Enterprise—Copper in Sandstone (J. F. Michell); Devon Great Consols Mine—Wages Question; Devon Great Consols; Hingston Down Consols; Cornish Mining and its Prospects (C. Bawden); Our Home Industries; Wheel Crebor (R. Symonds); "Virgin Ground" (R. Symonds); Exhausted Mines (R. Symonds); Mining in Cardiganshire; Cambrian Mining Company (G. H. Keene); Parys Mountain, North Wales; Killfretth Mining Company; Scotch Mining Share Market; Boiler Insurance and Steam Power Company—Meetings of Public Companies; English and Australian Copper; South Caradon; Halkyn District—New Mining Pump, &c.

LEAD MARKET.—The price of lead, which a few months ago was as low as about 15s. to 16s. per ton, has now advanced to 21s. per ton in New York, and is very firmly held. A still higher price is fully anticipated there in consequence of the great revival of business throughout the United States. The stocks of lead in Spain have all been disposed of, and the consumers in England hold very light stocks, so a sharp rise may, therefore, occur in our market long before it is looked for. This is indeed good news for shareholders in lead mines.

VEXTIOUS WINDING-UP PETITIONS.—The appeal against the dismissal, by Vice-Chancellor Hall, of the petition to wind up the Riscoal Gold Washing Company came before the Court of Appeal on Wednesday, when the ruling of the Vice-Chancellor was upheld, and the appeal dismissed with costs. Similar appeals in the cases of the Malpas and Malabar Companies have, we understand, been since withdrawn. The Master of the Rolls, in dismissing the appeal, said that, "Speaking as a reasonable man, he had no doubt that this was not a *bona fide* petition; it was presented either for the purpose of obtaining costs or of causing annoyance to some other person."

KILLFRETTH.—In spite of the almost overwhelming depression which has so long and so seriously affected Cornish mining, and which has actually been fatal to hundreds of young speculations, this mine has not only held its own, but seems determined to come to the front. Under a strong belief in ultimate success, the shareholders have stuck to its development in a manner which cannot but command admiration. From the last report it seems that the anticipations of the shareholders are likely to be early realised. The shaft is now being sunk before the 70, and strong indications exist of an early intersection of copper deposits, and when it is re-

membered that at the depth now reached the deposits in the neighbouring mines were found, and that almost fabulous profits have been paid by them, it is not surprising that the agents and the shareholders should expect that at no distant date they too will reap their reward, which now under the improved state of the tin trade, and the simultaneous improvements in the mine, seems nearly within reach. Great interest is felt in the neighbourhood as to the future of the mine, which it is not too much to say gives good prospects of affording another instance of the enormous profits to be derived from successful mining speculation.

THE RICA GOLD WASHING COMPANY.

In the Court of Appeal, on Wednesday, before the Master of the Rolls and Lords Justices Bramwell and Brett, an appeal from the refusal of Vice-Chancellor Hall to make an order for the winding-up of this company was heard. The company was formed in 1872, with a nominal capital of 50,000l. in shares of 1l. each, for the purpose of purchasing and working some mining property in the United States of Colombia. The petitioner was the holder of 75 fully paid-up shares, which he had bought in the market. The Vice-Chancellor dismissed the petition on the ground that it was not a *bona fide* petition, and that the petitioner had not a sufficient interest to support it. The petitioner appealed.

Mr. Dickinson, Q.C., and Mr. Job Bradford were heard in support of the appeal; Mr. Graham Hastings, Q.C., and Mr. Josiah Wilkinson for the company; and Mr. W. Pearson, Q.C., Mr. Grosvenor Woods, and Mr. Welby King for shareholders who opposed the winding-up, were not called upon.

The Master of the Rolls said that a petitioner who was the holder of fully paid-up shares was in this position:—He was not liable to contribute anything to the assets of the company; if he had any interest at all it would be if, after full payment of all the debts and liabilities of the company and the costs of the winding-up, there remained a surplus such that, when it was fairly divided, the petitioner would receive a sum sufficient to support a petition for winding up. His interest must be a tangible one. And, without exactly defining what that was, his Lordship thought that if the petitioner showed that he would get only 5l. after payment of the debts and costs, that would not do. Then the petition made vague allegations of fraud. The rule in equity always was that when you alleged fraud you must state the facts constituting the fraud, so that the other side might know what they were. Of course it was not necessary to state the evidence of the facts alleged. It must be shown, also, that if the alleged fraud were proved the result would be to increase the assets of the company. If the petitioner showed no other available assets but what might be obtained by recovering moneys fraudulently obtained by directors and promoters, his Lordship thought that as a general rule that would not be enough to support a winding-up petition. An action should be brought first to recover the money, and it should be divided. No doubt there were some exceptions. If, for instance, the majority of the shareholders sided with the directors, and thus prevented the bringing of an action by the company, the minority might be entitled to invoke the aid of the Court in the winding-up, so as to enable the action to be brought by the liquidator. His Lordship went through the allegations of the petition *seriatim*, and said that, when it was looked at fairly, there was no definite allegation of fraud, and nothing to show that the company had any assets. It was clearly a demurrable petition. A very different case had been presented in the argument, but there was not a word of it in the petition. With regard to the amount of the petitioner's claim, his Lordship said he had had a very large experience in winding-up petitions, both at the Bar and on the Bench, and he could not conceive that a shareholder who held 75l. worth of fully paid-up shares should imagine that he had any interest in presenting a winding-up petition. Speaking as a reasonable man, his Lordship had no doubt that this was not a *bona fide* petition; it was presented either for the purpose of obtaining costs or of causing annoyance to some other person. His Lordship agreed with the Vice-Chancellor, and thought that the petition had been properly dismissed, with costs.

Lord Justice Bramwell and Lord Justice Brett concurred.

RAILWAY CARRIAGE WINDOW FASTENER.—It is difficult to say which is the greater, the annoyance and inconvenience caused to railway travellers through their inability to open or shut a window owing to the straps and rollers being out of order, or the loss which the railway company has to bear in repairing and replacing the damaged fittings. The number of window straps cut off and stolen must alone represent a considerable item in the expenditure of the company; but in addition to this there is a large number of travellers who, although not placing themselves quite within the category of thieves, inflict equal injury upon the company and more honest class of passengers by cutting the whole of the strap holes into one, or dividing the entire strap into ribbons. A complete remedy for this state of affairs has been devised by a Liverpool cotton-broker, Mr. HUGO WORTHINGTON, of Tempest-hay, and during the past week the invention, which has been patented not only in Great Britain but in the United States and in the principal continental countries, has been on view in Parliament-street, Westminster. The arrangement is equally applicable to all kinds of carriage windows, and is at once novel and efficient, whilst for cheapness and simplicity it compares very favourably with the usual straps, rollers, and fastenings. The fastener is attached to the top of the sliding sash frame, and consists of a couple of struts, which are thrown against the groove in which the frame slides by a half turn of the handle, which serves the double purpose of lifting the sash and fastening it in any desired position. To close or partially close the window all that is necessary is to lift the sash with the finger-piece in the usual way, and upon the desired height being attained a half turn to the left fixes it firmly in position, where it remains absolutely free from vibration and noise, which cause so much annoyance with the ordinary fastenings. The fastener is complete in itself, can readily be attached to any carriage window, and once affixed is beyond the reach of injury by the mischievous. When it is desired to lower the sash a half turn of the handle to the right leaves the sash ready to descend by its own weight. It is understood that the invention has been examined by a large number of railway officials and travellers, all of whom express their highest admiration of it. When better known it will, no doubt, be extensively adopted.

SAFETY LAMPS.—The invention of Messrs. DOOLY and MINSHALL, of Stockport, relates to supplying atmospheric air to miners' safety lamps and other lamps, in such a manner as to maintain combustion while preserving the flame from noxious or other prejudicial gases, vapours, and strong currents and counter currents, by which means they produce lamps of good lighting capacity, strong and quite safe in use in mines, whatever may be the state of the air therein. For this purpose they employ an ordinary miners lamp, on the top of which they screw a cap having a hollow flange forming a circular air chamber. The bottom part of the cap is cut with a screw to screw it on to the top of the lamp and also to screw up in position a wire gauze or finely perforated metal cap which is brazed or otherwise secured to a metal ring. The wire gauze cap closes the air chamber, and the metal ring screws up the cap. The wire gauze cap allows only atmospheric air to pass into the burner air chamber to the flame to maintain combustion. The air enters the circular air chamber through a series of small holes drilled underneath the circular air chamber or bottom plate of the hollow flange, or the air can enter through tubes from the bottom of the lamp, the same being protected by a wire gauze cap. The top of the lamp cap is made with a socket having a flange on the top; to this top flange is brazed or otherwise secured a wire gauze ring, in which is fitted a glass or crystal chimney, but by preference of toughened glass; the top of the chimney is held in position by another wire gauze ring secured to the top cap of the lamp. The gaseous products of combustion pass up the chimney and through the wire gauze rim or ring, and thence down a passage formed by a circular space between the chimney and a toughened glass cylinder, which is fitted over the chimney. The cylinder is held in position by a circular perforated metal rim, through which escapes

the gaseous products of combustion, a protecting cage formed of neat galvanised iron wires or bars is placed over the glass cylinder to protect the glass, and the cage is supported on the top of the hollow flange air chamber. They also construct miners' and other lamps with an outer glass chimney covering made triangular, in which are secured bulls-eyes made with convex surfaces. These five bulls-eyes are made hollow in which is placed water or liquids. These hollow bulls-eyes containing liquids or water can be used for other purposes on account of their great illuminating power.

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MINING ENGINEER, OSWESTRY.

Author of "Slate and Slate Quarrying," "Metalliferous Minerals, Mines, and Mining" (now in course of publication).

Respectfully intimates that, accompanied by his son, Mr. E. HENRY DAVIES, he is about shortly to PAY a MINING VISIT to RHENISH GERMANY, and he would be glad to UNDERTAKE the EXAMINATION of MINES, QUARRIES, and MINERAL PROPERTIES for persons interested in the same.
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IMPORTANT NOTICE.—REDUCTION OF POSTAGE ON THE "MINING JOURNAL."—In consequence of the new POSTAL CONVENTION, which came into operation on July 1, the postage of the Mining Journal to many countries will be reduced to one-fourth. Henceforth the subscription will be 1l. 10s. 4d. per annum (39 frs.), postage included, for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxembourg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Serbia, Sweden, Switzerland, United States, Malta, Turkey, Morocco, Tunis, and the Canary Islands. Spain 1l. 19s. (60 frs.).

Notices to Correspondents.

"Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be kept on receipt; it then forms an accumulating useful work of reference."

COMPANIES LAW—COPY OF REGISTER.—"S. H. B." (Bagillt).—Every person, whether shareholder or not, can inspect register; shareholders gratis, non-shareholders on payment of 1s. Both shareholders and non-shareholders can (25-26 Vic. c. 89, sec. 32) demand copy of all or part of register on payment of 6d. for each 100 words to be copied. The penalty for refusal is 2s., and a further 2s. per day during which such refusal continues.

ABRIDGMENTS OF SPECIFICATIONS.—"J. C. S. P." (Hungerford).—The series of abridgments relating to hinges, joints, &c., are supplied direct by H.M. Commissioners of Patents. "J. C. S. P." must send Post-office Order for 1s. (postage-stamps are not received) to Mr. H. Reader Lack, Sale Department, H.M.'s Commissioner of Patents, Curator-street, London, E.C., and he will receive the volume through the post.

DEPRECIATION OF SILVER.—The letter from "Liskeardite" on this subject shall appear in next week's Journal.

Received.—"R. S." (Truro). The letter on Wheel Basset did not reach us until Saturday morning, or its receipt would have been acknowledged.—"G. M." (Moseley).—"S. B. and Co." (Philadelphia).—"J. P." (Limerick).—"D. B." (Carlisle).—"W. M." (Thurston).—"Stannum."—"W. G." (Waraw).—"W. A."—"J. C." (Seorrier). We do not know of any—"A. Holder, at one time, of 700 shares" (Richmond). It would hardly be fair to publish such a letter, written for the avowed purpose of influencing the shares—"Shareholder" (Neath). Next week—"Old Reader" (Lostwithiel). We do not know; nor is there any possibility of ascertaining—"R. S." (a Retrospect) shall appear in next week's Journal—"Shareholder" (Flagstaff).—"Coal Merchant" (Birmingham).

THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, FEBRUARY 22, 1879.

THE ROYAL COMMISSION ON MINING ACCIDENTS AND THEIR PREVENTION.

A paper we understand has been prepared by Mr. W. EMBLETON, the first president of the Midland Institute of Mining Engineers, and about the oldest practical viewer in Yorkshire, on sudden outbursts of gas at the collieries in the districts between Barnsley and Sheffield in particular, where they have been of more frequent occurrence than in any other part of the country, for the consideration of the recently appointed Commission to enquire into the best means for preventing accidents in coal mines. The extraordinary phenomena presented by the sudden outbursts of gas from the floors of mines have been most puzzling to account for by our most practical mining engineers, but if the Royal Commission should be able satisfactorily to explain the cause of their occurrence, and how their visitations can be anticipated so as to prevent an accident from explosion, then will the gentlemen composing it be worthy of the most hearty thanks not only of mining engineers but of working miners as well. But we are afraid that we are not likely to have our knowledge of such surprising outbursts of gas as occasionally take place in some of our mines materially augmented by the gentlemen composing the Commission, seeing that the viewers who have seen such serious accumulations of gas from what may be considered truly hidden sources are not members of it. However, it is to be feared that the actual cause of some of our most serious explosions has been a sudden outburst of gas from some place that it was impossible to find out after the catastrophe took place, and when floor and roof alike were found to be in a state of wreck and ruin.

One of the earliest and most extraordinary of these outbursts we have had noted took place in the latter part of 1867, at the Stafford Main Colliery, near Barnsley, in the well-known Silkestone seam, and was followed three years afterwards by a similar eruption. In both cases the gas came from the strata below the floor. The first intimation given that anything out of the ordinary course had taken place was a rush of gas, air, and dust, and the extinguishing of all the lamps in the working places, where there was a current of 11,500 ft. of pure air, running at a velocity of 360 ft. per minute. On the intake side of the outburst a current of 4200 ft., with a velocity of 140 ft. per minute, was backed along the line of face and into the face of the bords, where it put out the lamps, so that the men escaped in the dark. On the occasion of the first outburst alluded to four of the men were knocked down by the gas, and remained in that state for more than an hour; and when they were reached two were found insensible, whilst one was in a stupor and powerless, whilst the fourth was quite delirious, and throwing his arms about. At one point a crack was found in the floor from which the gas was coming so strongly that a lamp could not be taken near it. The bank faces near to the crack could not be properly examined until the second day after the floor had burst, and it was found it could be traced for over 40 yards at a little distance from the face, seeming also to extend further at each end, but could not be traced where it ran into the goaf, and was covered with fallen roof. On the face afterwards being advanced another crack was observed about 4½ ft. further, the floor being lifted up and hollow in the space named, but beyond that was hard and solid. For many yards outward, towards the crack, the height between floor and roof was considerably reduced. In the second outburst the floor again rose up close to the face of the bank, and although less violent than the first one it was sufficient to foul a strong current of air, being 10,000 to 12,000 ft. per minute on the face, and where it joined with 8000 ft. per minute more, for at least four hours after first coming off.

It was found that the floor at a not less depth than 11 in. was rent, and that it required not less than 30 lbs. per square inch force to do so. It would appear that whether the pressure of gas is as the depth from surface or not it is lodged with an enormous amount of force, and is acting against a lessening amount of resistance as the coal face advances by whatever method of working the coal is brought down. The conclusion arrived at appears to be—although as Mr. EMBLETON has stated has not been definitely settled—that in these outbursts the gas existed at a certain pressure under certain strata, and was confined there so long as the pressure of the strata was greater than the pressure of the gas; but when the pressure was removed by blasting or other means the gas went away.

At the well-known Oaks Colliery there have been several outbursts of gas similar to those at the Stafford Main; but owing to the good ventilation, and the use of the best safety-lamps, without doing any injury, whilst similar phenomena have taken place at one or two mines in Belgium, the gas containing a much larger quantity of nitrogen than is found in connection with the English coal measures. In one case in Belgium the accident was due to purely mechanical causes, the gas being unflammable and incapable of producing an explosive mixture with air, and was comparable to the bursting of a boiler or air-reservoir under excessive strain, and seems to justify the adoption of a solution suggested by Dr. WINKLER, and founded, we believe, on RICHTER'S observation, that although sinking some distance from the coal, the cause of the explosion seems to be that hollows in the strata immediately above the coal measures were filled with gas given off by the coal, where it was stored up under great pressure until in the course of sinking the walls of a principal reservoir were sufficiently attenuated to give way explosively, so that after the first burst the gas continued to escape for several months through the ground loosened by the first blast. Some of our engineers have also expressed an opinion that these sudden discharges arise from the same cause as earthquakes—that is from the pressure of gas pent up, and may be expected to take place in all countries where coal is found to exist. Another gentleman informs us that at Ryhope Colliery, in the North of England, it was not at all an uncommon thing for some of the men to be thrown off their feet when walking along the face of the coal from sudden upheavings of the floor taking place. The bottom at some places has been found to lift by the superincumbent pressure

bearing upon it; but it has also been found that the gas was not always reached by boring. So far as our information at present goes the most effective means of avoiding such sudden outbursts of gas as we have noticed is by boring into the strata, and so letting the gas escape. The question, however, is a most important one, and no doubt will receive the serious attention of the Royal Commission, although we may fairly assume that the members are not much acquainted with these sudden outbursts of gas, which are calculated to do serious injury to life and property. The result of the deliberations of the Commission on such and other topics having for their object the safe working of mines, we need scarcely say is looked forward to with a great deal of interest by colliery managers and others.

THE ABERCARNE COLLIERY EXPLOSION.

The statement made by the HOME SECRETARY in the House of Commons on Monday night, in answer to a question put by Mr. MACDONALD, that the Ebbw Vale Company could not afford to carry on any further the work of recovering the 260 bodies lost by the Abercarne Colliery Explosion has caused great astonishment to all persons engaged in coal mining. It is the first time in the history of colliery explosions when the bodies of victims, so far as they could be found by unremitting toil and heavy expenditure, have been deprived of decent burial, the last consolation that can be given to the surviving relatives. To know that those who belonged to them have found a resting place amongst their kin, and where their graves can be visited, is to the colliers' widows and children something Christian-like; but to know that those they loved when living are rotting amongst coal and the debris of a mine is revolting to one's nature. The Greeks of old always fought hard to bring back the bodies of their heroes from battle, and surely with regard to the poor miners in the depths of the Abercarne workings it is worth fighting to recover their bodies and give them decent sepulture. A gleam of light would be thrown upon the dark shadow, which cannot be removed by earthly hands, by the recovery of the bodies, and the desolate homes of the widows and orphans would be made more cheerful by the knowledge that their unfortunate husbands and fathers had received Christian burial, for—"There is a tear for all that die"—A mourner o'er the humblest grave. And the remains of those humble men, who in all probability fought hard for life, will be as lasting and fragrant in the hearts of the poor sufferers as if the victims had been of a much higher social position. The only reason given for not recovering the bodies is that of expense—a reason, to our thinking, most humiliating.

In no former calamity of a similar character have we ever heard of the word expense being used in connection with the recovery of bodies. At the Lund Hill Colliery, near Barnsley, in 1857 there was an explosion by which 189 persons were killed, but the proprietors, four in number, two of them comparatively poor men, spared nothing in recovering the bodies and opening out the mine. It was certainly hard work, occupied many months, but it was accomplished at a cost of upwards of 22,000l. Then in 1866 we had the Oaks explosion, when 360 men were killed. The colliery belonged to two persons, neither of them rich, yet the proprietors never relaxed in their efforts to recover the bodies. The mine was sealed up for upwards of eight months, after which many bodies were brought out and identified, amongst them being the well-known mining engineer, PERKIN JEFFCOCK. Since then we have had many explosions in which hundreds of lives were lost, but the bodies of all were recovered, followed to the grave by those who loved and tended them whilst living. Such a resurrection, even to be taken to "God's acre," is a solace to the relatives, and a witness to our Christianity. We are told on the part of the company that to recover the bodies would take 18 months, at a cost of 5000l. a week, but how this is made out we are unable to say; but we do know that nothing like that sum was required for any previous explosion. The Government Inspector, however, gives it as his opinion that the work would require about 12 months, at an expenditure of from 25,000l. to 30,000l. A good deal of the calculations is mere conjecture, for no one can state what actual amount of labour would be required, or the expense which would be incurred. We have, however, shown that firms very small in every way when compared with the Ebbw Vale Company have not shrunk from recovering the bodies of men killed by the explosions in their mines regardless of cost, and we certainly think the question of expenditure should not be considered in connection with the unfortunate victims now entombed at Abercarne. The credit of South Wales is certainly in the balance, and we do hope that some effort will be made to keep from it such a stigma as would attach to that part of the Principality by not recovering the bodies and giving them Christian rites.

BUSINESS IN SPAIN—ENGLISH COAL.

It was announced recently that the Spanish Government had decided to purchase no more English coal for the Spanish Navy, but to rely exclusively upon Spanish coal. This object may possibly be attained, but we are not very sure that it will be, in consequence of the indolence which appears to be an inveterate characteristic of the Spanish people. What but this indolence can explain, for instance, the present miserable condition of the national finances of Spain? Although Spain is one of the oldest monarchies, and one of the most populous and fertile countries in Europe, she is content to descend to the meanness of a partial repudiation of her national debt. Portugal, her next neighbour, scrupulously maintains her national credit, but Spain pays just 1 per cent. per annum upon her public debt and no more, although she contracted to pay 3 per cent. per annum. A vigorous and energetic nation, possessing, as Spain does, a population of 17,000,000, ought to be able to pay with ease 3 per cent. per annum upon the amount in round figures of the national debt of Spain, which may be taken, for the purposes of our argument, at about 350,000,000l.; but Spain is neither vigorous nor energetic, and is content to languish on in partial bankruptcy. Is such a country as this likely to apply itself with energy to the utilisation of the coal wealth with which Nature has endowed it? We fear that it will be with Spain as it has been with Virginia on the other side of the Atlantic. A people who have no conscientious sense of what is due to their creditors are not likely to look very closely after their own interests, and will be rather content to drift on in sluggish ease.

If we want further illustration of the justice of our argument it may be found in the fact that the vast deposits of ironstone which exist in the North of Spain remained practically untouched until English capitalists commenced working them some few years since. The more educated Spaniards of the North of Spain may have known of the existence of this ironstone, and may have even appreciated its value. But they made no effort to turn it to account, and they were content that such profits as could be extracted from it should pass into the hands of another and more energetic race. When we see such facts as these pass before our eyes we cannot be quite sure that even now the Spanish Government will be able to dispense with English coal altogether, and have at its command a sufficient supply of coal extracted from the soil of Spain itself.

We may, perhaps, give another illustration of the indolence which renders the Spaniards habitually dependent upon their neighbours. A line of railway rather more than 110 miles in length has just been completed between Madrid and Ciudad Real, with which city it has been deemed desirable to establish more direct and more rapid communication. The KING of Spain approved by royal decree the plans of the line in October, 1877, and in March, 1879, the running of trains will be commenced upon it. It may be said that all this affords proofs of Spanish energy rather than otherwise, and so it does at first sight. But this can scarcely be said to be the case when we find that M. DAUDERNY, a Belgian, was the contractor for the line, and that the rails were supplied by the John Cockerill Company, Belgium, while the bridges and other ironwork were executed by MM. ROLIN, of Braine-le-Comte, and the Fives-Lille Company. Even the rolling stock was not made in Spain, but was supplied by the Dyle Workshops Company, another Belgian concern.

Nearly 17 years have elapsed since we noticed in the London Exhibition of 1862 some rails made by the Thy-le-Château Company for the Northern of Spain, but Spain appears to be almost as dependent as ever upon foreigners for the rails which she consumes. It is very possible, then, that the Government of an indolent, backward, and impoverished country such as Spain appears to be may even now have to import coal for its navy.

THE MINES EXPLOSION COMMISSION.—The text of the Royal Commission to enquire into the subject of explosions in mines is published in the London Gazette. It states that it having been represented that many destructive accidents happen in mines from explosions and other causes, and that with a view to the prevention of such accidents, and the mitigation of their consequences, it is important to ascertain whether the scientific knowledge at present possessed of the phenomena relating to mines and operations therein can contribute any further precautions or appliances suitable for practical adoption, Her Majesty has deemed it expedient that a Commission should forthwith issue for the purpose of enquiring and reporting whether, with respect to the influence of fluctuations of atmospheric pressure upon the issue of fire-damp from coal; to the adoption and efficient application of trustworthy indicators of the presence of fire-damp; and generally, to modes of systematic observation of the air in mines; to improved methods of ventilation and illumination; to employment of explosives in the getting of minerals, and to other particulars relating to mines and mining operations, the resources of science furnish any practicable expedients that are not now in use, and are calculated to prevent the occurrence of accidents, or limit their disastrous consequences. Full powers are given to the Commissioners, whose names we published in last week's Journal.

MINING MANAGERS' AUTHORITY.—A decision of great importance has been given by the magistrates at the Petty Sessions held at Coventry, on Friday. Mr. Barker is certificated manager of the Bedworth Coal and Iron Company's Charity Colliery. Mr. Bradbury had taken a contract under which the company let him the mining and working of the Charity Colliery at a certain rate per ton. All the material facts were admitted by all parties. The engine driver and head banksman, both of whom were paid by Bradbury were, under the following circumstances, summoned for "disobeying the commands of their employer, Bradbury." The amount of damages if recoverable were agreed to. The certificated manager, Mr. Barker, ordered the engine driver not to start the engine and the head banksman not to loose the catches because, in contravention of special rule 3, a man who was not registered had been admitted into the pit, and refused to leave, and also because another man who was about to descend in the cage had broken rule 4, by absenting himself without permission. Mr. Bradbury gave the contrary orders. The engine driver and banksman obeyed Barker, and necessarily disobeyed Bradbury. On behalf of Bradbury it was contended that assuming that Barker had reasons for his conduct in giving the order he had no power as manager to do it, or, in other words, he had no right simply because he objected to a person to give orders to others who were not employed by him, and who were bound to obey Bradbury's orders; he had no authority to interfere except in matters where the safety of the mine or the men were concerned; and, therefore, the defendants were bound to obey the contractor's orders, and were liable for the damages claimed. On behalf of Barker it was contended that the manager, being the only officer personally and criminally responsible, was the supreme authority in the mine, and that he had power to interfere with the working at any time upon reasonable cause, and that this interference was justifiable and reasonable. After an enquiry lasting about four hours the Bench decided in favour of the defendants, stating that they must hold that the manager had power to give such orders as appeared to him to be necessary for the management and safety of the mine. Whether he exercised that power wisely or unwisely in the present instance was a matter for further consideration and argument. The magistrates considered that he exercised it in a way less direct and satisfactory than he might have done, but that was not before them. The men were bound to obey the person who had ultimate authority, and was absolutely in charge of the mine. If there had been any mistake on the manager's part—which the Bench could not now determine—the remedy of the contractor was against the person contracting. For the men themselves it was simply a convenient rule, and one that must minister to the safety and welfare of those engaged in mining operations, that the manager must have ultimate authority and ultimate responsibility.

NEGLECT TO KEEP FIREMAN'S REPORT.—At the Swansea Petty Sessions, on Saturday, William P. George, manager of the Western Merthyr Colliery, at Llangyfelach, was fined 5l., including costs, for that he did not once in every 24 hours, before the time for commencing work in the said mine, or a part thereof, inspect the said mine, or a part thereof, and the roadways leading thereto, and make a true report of the condition thereof, so far as ventilation was concerned; and that workmen went to work in the said mine, or that part thereof, before the same and the roadways leading thereto were stated to be safe, and that such report (if any) was not recorded without delay in a book kept for that purpose, and signed by the person making the same. For the defendant it was urged that unsigned dots on the page meant "ditto, ditto," the words "no gas" appearing at the top. The Government Inspector, Mr. T. E. Wales, said it was not a fiery mine, and he could not say anything against the management. Mr. George's excuse for not keeping a proper book was that he did not think there was any gas.

NEGLECTING COLLIERY VENTILATING FURNACE.—The Rotherham magistrates have committed an underviewer to prison for 21 days, with hard labour, for having allowed the fires for driving the ventilation machinery to get so low that the safety of the mine was interfered with. The defendant had been asleep in a cabin, and it was alleged that had his neglect continued for half-an-hour a considerable amount of gas would probably have gathered in the pit.

THE DINAS MINE DISASTER.—In the House of Commons on Tuesday, Mr. Macdonald asked the Home Secretary if it be correct that the Dinas Mine, Rhondda Valley, at the time of the explosion, whereby over 60 persons lost their lives, was being carried on without a properly certificated manager in terms of the Coal Mines Regulation Act, 1873; whether such a state of things was known to the Inspector for the district, and if he had taken any action to enforce compliance with the section of the clause, which leaves it in the hands of the magistrates to impose a penalty of 50l. for neglecting to have a certificated manager, and the liability to a further penalty of 10l. for every day until the Act be complied with; further, if there was any correspondence between the Inspector and the owner of the colliery, if he would object to lay such correspondence upon the table of the House; and whether it was intended to close the colliery, as at Abercarne. Mr. Cross stated that Mr. Hughes, the manager of the colliery at the time of the explosion, did not hold a certificate, but was appointed by the owners under sub-section B of the 26th section of the Mines Regulation Acts, 1872, which provides that "the owner or agent of a mine may appoint any competent person not holding a certificate under this Act, to be manager for a period not exceeding two months, or such longer period as may elapse, before such person has an opportunity of obtaining on examination a certificate under the Act." Due notice was sent to the Inspector of the district as required by the Act, and the correspondence would be produced if moved for. There was not the slightest foundation for the suspicion that the owners of the colliery intended to close it. On the contrary, they were doing everything in their power to recover the bodies.

STEELMAKING IN INDIA.—Instructions have been sent out to India authorising the making, at Warora, in the Central Presidency, by Mr. Walter Ness, the mining engineer of the Government Collieries there, of steel by the process which Mr. Ness's experiments in this country showed to be most suitable for the utilisation of the native materials. Specimens of the steel in the shape of high-class cutlery are in the possession of the leading officials, and the annual report of the Public Works Department in the central provinces, just to hand from India, sets forth that, in addition to a portion of the steel

having been made into bars suitable for engraving tools and dies for mint purposes, two tons of the "sponge" was proposed to be converted into steel shot or shell for armour piercing purposes, "the tenacity of the steel and its resistance on impact being exceptional." In his "minute" which forms a part of the Indian Blue Book, the Chief Commissioner writes, in relation to the experiments:—"There appears every reason to hope that they may lead to the establishment of a very important local industry, and the development of the resources of the country."

POWELL'S DUFFRYN COLLIERIES.—Mr. S. B. GILROY, Assistant Government Inspector of Mines for the district of North Staffordshire, Cheshire, and Shropshire, has resigned his appointment, after five years' service, in order to take the general management of the Powell's Duffryn Steam Coal Company's collieries in the Aberdare valley. Mr. Gilroy had several years' experience as a mining engineer in South Lancashire, North Wales, and Derbyshire previous to entering Her Majesty's service.

GOLD IN VICTORIA.—The total amount of gold exported from the colony of Victoria from the beginning of the past year to Dec. 25 last has been 339,273 ozs. During the corresponding period of the previous year the entire quantity exported was 472,111 ozs.

REPORT FROM CORNWALL.

Feb. 20.—Again there appear to be signs of improvement. The Australian "snake" is "scotched" at any rate, if not quite killed. Of course Australia has as much right to raise tin, if it can, as Cornwall, and this epithet must only be taken in a figurative sense as used here, though we may as well acknowledge that we have heard it applied more literally by some who have been smarting under the effects of antipodal competition. Anyway, however, the fact remains the same; the Australian tin produce is steadily dwindling, while Cornwall is really getting more fit for competition than ever. We hear very good accounts from most of the leading mines, alike as to yield and economy of working. All through the depression there has been a steady improvement in the character of these mines, speaking generally, coincident with a steady and progressive reduction in cost. What half-a-dozen years ago would have been deemed impossibilities are now matters of everyday occurrence, and thus make final and substantial success assured.

Nevertheless, the present continues a time of trial. Convened by the High Sheriff—Mr. Pendarves—a meeting has been held to take steps for relieving the distress among the mining districts in the county, which is now considerable. The gathering was very influential, and came to some very practical conclusions. How greatly the depression has affected the industrial element in Cornwall was shown by one fact, given on the authority of Dr. Foster, that whereas in 1872 the mines of the county afforded employment to 26,500 persons, the number employed now is but 13,730. Of course, large numbers of those thus thrown out of work have sought employment elsewhere, and some thousands have emigrated. Now, if mining is to revive, as we all hope and believe it will, the process of emigration has gone quite far enough, and it was very rightly deemed to be the chief object of relief to find work for those who were unemployed, not to give alms merely. As to emigration, Mr. Pendarves Vivian, M.P., expressed an opinion, which was generally accepted, that if assistance was to be rendered in that direction it should certainly be confined at first to sending out the families of those already abroad. Sir John St. Aubyn suggested that local work might be found for some time in carrying out local improvements, and this is certainly the direction in which we should like to see special efforts made. A central committee has been appointed, which will work with and through local committees, and, we anticipate, with very satisfactory results. Work—not alms—we repeat, is the thing most needful.

Capt. Teague, too, hit the right nail on the head when he called attention to the dues question, and suggested that if the present general rates continued to be exacted a portion of the money should be spent in providing employment on the mines. This might very well be done in the way of aiding the mines to carry out exploring operations, and develop the resources of the properties. It is not fair, it is not politic, to exact the pound of flesh at such a crisis as this. But the more we study the question the more we are convinced that nothing satisfactory or permanently useful will be done until we get dues put on their proper basis, and levied on profits only. At present, in most of our mines, they simply assume the shape of an additional burden, and make the adventurers pay extra for the privilege of losing money.

There has been a slight exportation of mining labour from the east of the county to Plymouth, where the dock coal porters set up a senseless strike, and have in some instances been replaced by miners. There is no disposition in Cornwall to stickle for high pay, the poor fellows know what the pinch is too well. They are ready to work at almost any rate that will keep body and soul together. Pity that there should be the need; but these are just the men that deserve to be helped—men who will do any honest labour rather than come on the rates.

The Davy Centenary Celebration at Penzance has been a marvellous success, far beyond the most sanguine anticipations. The exhibition, the chief details of which we noted last week, proved very attractive, and was thoroughly appreciated; and the lectures and addresses were pithy and *à propos*, and calculated to leave behind them an abiding influence in the stimulus given to science and scientific teaching. Among those who took a leading part in the celebration were Sir J. St. Aubyn, M.P.; Mr. A. P. Vivian, M.P.; the Mayor of Penzance (Mr. C. C. Ross); Dr. Foster, F.G.S.; Dr. Oxland, F.G.S.; Mr. J. H. Collins, F.G.S.; Mr. Kitto, F.G.S.; Mr. J. C. Uren; Mr. Barnett, F.G.S.; Rev. Canon Rogers, Rev. T. Bennett, Dr. Hudson, Mr. W. A. Taylor, Mr. G. O. Spratt, Mr. T. Cornish, and Mr. Boyns. Except incidentally, there was very little reference to matters connected with practical mining, though in one way or another nearly the whole "circle of the sciences" was illustrated.

Mr. A. P. Vivian, however, who is largely interested in collieries, as well as in smelting and in general mining, made some practical and valuable observations on Davy's safety lamp. It was, he said, of course, impossible even to conjecture what amount of human life had been saved by that invention, but if the discovery had never been made some of the best seams of coal could not have been worked; or if worked at all, the coal could only have been supplied to the nation at such a cost as would have made it unattainable for all but the wealthy. Before that great discovery was made, coal mines were worked with naked candles, and when in the presence of gas it was necessary to ascertain if the quantity was sufficient to be dangerous—to "try the gas," as it was commonly called—the coal miner snuffed his candle with his fingers, and lifted it up towards the surface of the level where the explosive gases were sure to be. He then watched the flame, and saw if it was "capped," or elongated by coming in contact with the gas. Precisely the same process was carried out by the safety-lamp. To "try the gas" the wick was lowered, and the safety-lamp raised gradually into the higher part of the level, and the flame was watched to see if it elongated, or "capped." He had himself seen the process carried out, and had seen the gas ignite inside the lamp. It sounded dreadfully dangerous, and so no doubt it would be were the lamp not made exactly in conformity to the laws laid down by Sir Humphry Davy 60 years ago. Sixty-three years had elapsed since Davy patented his lamp, and yet during all that time no lamp had been invented to supersede it. Every lamp which had been since brought to the front depended upon Sir Humphry Davy's gauge for its safety, was in fact nothing but a modification of Sir Humphry Davy's lamp, and no lamp was safe unless of the dimensions specified by Davy, namely, that the gauge cylinder should not be more than 1½ in. in diameter, and should not contain holes larger than 7/84 of the square inch. The subject could only be fully appreciated by those who had to go on certain occasions into the coal workings where the gas existed in dangerous quantities, and who did so with perfect confidence, perfect faith in Sir Humphry Davy's laws, provided only they had been faithfully carried out by the manufacturer of the lamp. But, it might be asked, how was it that even in spite of the safety-lamp there were still so many fearful explosions with loss

of life in our mines? It was due to various reasons, but the unvarying cause was the protrusion of the flame through the apertures of the gauze. This might arise from the miner's carelessness in opening the lamp to snuff the wick, and so improve the light. Sometimes a miner would apply the bowl of his pipe to the top of the lamp, and suck the flames through the gauze to ignite the tobacco; or if the current of air in the workings exceeded five miles an hour, it was sufficient to drive the flame through the gauze so that an explosion might ensue. Every well-conducted mine, however, ought to be so ventilated as not to contain gas in sufficient quantities to be dangerous. Sir Humphry Davy was perfectly aware of the liability of the flame to penetrate the gauze when urged by a strong current of air, and expressly cautioned colliery authorities against attempting to work with that lamp in places where there was a strong current of air.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Feb. 20.—The collieries where furnace and forge coal is mined are in no better position, for the demand from the pig and finished iron makers keeps unusually small. Prices keep very low. Still there are persons who are not unprepared to invest their money in the trade, as is evidenced by the announcement this week that work at the Barbor's Field Colliery, Greet's Green, which has been suspended for some time, has been resumed, as a purchaser has been found for the property. The place is of considerable size, and when it shut down about 100 people were thrown idle. Arrangements continue to be made by individual colliery proprietors with a view to the lessening of working expenses, such action at a time like the present being necessary to keeping on at all. The labourers and such unskilled workpeople who find employment about the collieries of the Earl of Dudley, at Brierley Hill, have received an intimation that their wages must be lowered. Domestic fuel continues in capital sale alike upon Cannock Chase and the other localities where it is brought to bank. Pig-iron is unimproved either as regards the demand or the rates obtainable. Competition from the North of England and from Lancashire, Yorkshire, and Derbyshire is severe. It is not unlikely that the furnaces now in blast will be still further reduced in number. The finished ironmakers are mostly dull, and even firms of the highest standing are generally working from hand to mouth.

It is proposed that the Perry Colliery Company (Limited) shall be wound up voluntarily. The decision of the shareholders on the recommendation of the board will be taken next week.

The directors of the Patent Shaft and Axletree Company (Limited), Wednesbury, announce that the results of the last half-year's trading do not allow of the payment of an interim dividend on the ordinary stock, but that the profits are sufficient to provide for the payment of all standing charges, and of interest upon preference stock. No interim dividend will be paid by the Midland Railway Carriage and Wagon Company (Limited). The directors say that as they only pay dividends out of ascertained profits, and as these cannot be known until stocktaking in the summer, they are unable to recommend payment of a dividend.

A first meeting has been held of the creditors of Southam and Co., of the New Side Ironworks, Walsall, and a statement presented, showing the total unsecured creditors at 16082, and the total assets 24717. The accountant showed, however, that this large surplus did not exist; the assets would not realise more than 10000, and he supposed the claims would be from 30000 to 40000. The business was started on August 1 last, having been purchased from Messrs. Harrison, Hipkins, and Harrison for 85000, and it had not been carried on since Christmas. The debtors, the accountant said, had carried on their business at prices which certainly were under the cost of manufacture. The meeting was adjourned for a fortnight.

The death is announced at the age of 71 of Mr. Thomas Turley, of the firm of T. Turley and Sons, of the Cosley furnaces. The deceased gentleman was well known throughout South Staffordshire and East Worcestershire, and was, as he deserved to be, much respected.

The North Staffordshire trades do not exhibit any change calling for note.

It is interesting to note the position which local joint-stock coal-mining and iron-making concerns occupy in public favour. The original shares of the Sandwell Park Colliery are quoted by holders at 4 premium, but buyers only offer 3 premium; the new shares of the same concern are quoted by buyers at 2½ premium. The shares of the Willingsworth Colliery are priced by buyers at 6 dis. Sellers of the Pelsall Coal and Iron Company's property ask 10½ dis., buyers being at 11 dis. The 10½ shares of the Chillington Iron Company figure as 2½ sellers' price, and 1½ buyers' price. The business doing in all this class of properties is extremely limited.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Feb. 20.—Business generally throughout the mining districts of Derbyshire has not undergone much change of late, but there appears to be less distress prevailing in many places than there was a week or two since. The iron trade remains in about the same state as for some time past, the production being more than equal to the consumption, although it could be much larger were there a demand for it. But the competition in the various markets with other districts is keen, so that the prices realised are anything but profitable to the makers. A little more is being done in foundry pig for some of the local works. A good deal of ironstone continues to be imported from Northamptonshire, and some is also brought from Lincolnshire, so that a comparatively small quantity of the home ore is now used, what there is being obtained principally in connection with the coal measures, and mixed with the former. There has been a little more activity at some of the foundries, but with plenty of room for improvement. The season, however, is now approaching when it may be expected that ordinary builders' casting will be in better request, and that more will also be done in pipes, for the weather for a considerable time has been such as to prevent the laying down the latter in streets.

The weather, on the other hand, has turned out most favourable for colliery owners, and has also secured for the miners a great deal more work than they would otherwise have had, and so kept up both prices and wages. To London the trade has been good in both Silketones and other qualities, and large quantities have passed over the Midland daily from Clay Cross, Blackwell, Tibshelf, Grassmoor, and other collieries. The Great Northern has done more from the pits traversed by the line between Derby and Nottingham, and it is evident purposes doing more with them. But, on the other hand, there is not so much doing in steam coal, stocks of which go on accumulating, with but little chance of their being diminished for some weeks to come, for the commissioning of so many steam vessels just now does not affect the inland coal trade. A fair quantity is consumed by the locomotives and furnaces, but not much is being exported. Small coal does not go off at all well, whilst coke is not in such good request as it has been, although the production at some places is well kept up for several of the Sheffield and other works, as well as the home furnaces.

Trade in Sheffield and the neighbourhood is certainly not worse, nor can it be said to be better, so that there is still a considerable number of families recipients of the fund raised by the Mayor. Bessemer rail makers continue to be the best off, yet it is said of some of them that they have taken orders at prices that can but barely pay. In cast-steel quietness still prevails, and the men have in many instances been on short time for months past. One or two cutlery houses are doing rather more in both table and spring knives, and there has been a slight improvement with respect to saws. The foundries have not been so busy, the masters seeking for a reduction of wages, which has been conceded by the moulders at some of the largest works; indeed, one can scarcely recollect the time when the men have shown such a conciliatory disposition, and it is to be hoped that the same spirit will continue when trade revives. Some of the mills engaged on boiler-plates have been kept fairly going, but sheets do not appear to be in much request at present. No improvement has taken place in the saw trade, and the same remark applies to engineers and mechanics.

The collieries have been doing a very fair business throughout most

parts of the South Yorkshire district, but principally in house coal. During two or three days of tolerably moderate weather there was a decline, but the snow again making its appearance has led to the demand once more getting up, and prices being firm. But steam coal is hard to sell, whilst but little is being exported from Grimsby, as the busy season from that port does not commence before May, or the opening of the Baltic, so that many of the wagons that may be said to belong to the merchants there have to do duty to the South. The Great Northern Railway has taken of late more than an average tonnage of both Barnsley and Silkstone coal to the Metropolitan, and would take a great deal more were the company to reduce the rate, and so place the colliery owners on a par with those in Derbyshire sending by the Midland. It is expected that the decision as to the reduction of miners' wages will be made shortly, and it is now being looked forward to with a good deal of interest.

Mr. Arnold, boiler maker, of Barnsley, has been obliged to call his creditors together, but the estate is to be wound up by liquidation.

TRADE OF THE TYNE AND WEAR.

Feb. 19.—There have been enquiries this week for steam coal for the transport service, and, consequently, more demand for it. Some of the best works continue to do nearly full time. It is remarkable that a large quantity of this coal from Northumberland is sent from the Tyne Dock, and the shipments have been very large of late, and are likely to be increased. There was considerable activity on 'Change on Tuesday at Newcastle; business was stronger, and freighting was pretty active. Several North Country steamers have engaged to carry coal out to Simon's Bay, most of them will take Davison's and other first-class steam coals. The house coal trade, which was considered to have moderated considerably, may now be expected to revive, as winter has again returned in the North of England and Scotland with considerable severity. The coke trade continues very dull, and there is no improvement of consequence to notice in the manufacturing coal trade. The chemical trade, which is a very important one, is steadily improving in these rivers; prices are improving slowly, and more business has been done, and the prospect for the trade is certainly cheerful. There is no rush of the demand, but a steady quiet improvement.

At the North of England Institute of Mining and Mechanical Engineers' general meeting, on Saturday, there was some little discussion on the paper of Messrs. Morison and Marico on "Coal Dust." The conference intended to be held on Safety-Lamps did not take place, as a Royal Commission has been appointed to consider all matters relating to mines, and it was thought advisable to leave the matter in their hands. Three North Country gentlemen have been appointed members of the Royal Commission—Mr. Burt, Sir Geo. Elliot, and Mr. Lindsay Wool.

The iron market at Middlesbrough on Tuesday was fairly attended, and there having been more enquiry on account of the ports being opened, there is, according to some of the makers, rather a better feeling prevalent. As a matter of fact, however, prices do not show any appreciable change either upwards or downwards. Quotations being fixed on No. 1, 36s. 6d. to 37s.; No. 3, 33s.; No. 4, 32s. 6d. net. Merchants are pressing to buy at these figures, less 1 per cent., but makers as a whole do not give way. They hope for a better condition of things as the season advances and shipments increase. Though the deliveries of pig-iron to the Continent have been rather restricted they have somewhat improved for Scotland, and within the past fortnight, since the weather has improved, the quantity sent forward has nearly reached 13,000 tons, a quantity larger than had been sent for the remaining period since the year commenced. The present low quotations mostly favour the Cleveland ironmasters, and the contest with the Scotch producers may be said to be virtually over, as Cleveland metal is again gaining ascendancy in the Scotch market. A good deal of discussion is going forward in iron trade circles relative to the proposal lately made to invest capital in Cleveland pig-iron, with a view ere long of obtaining a considerable profit. The balance of opinion would seem to be in favour of postponing any such action, at least for the present, as it is considered that prices will be still lower. Over production is undoubtedly still the great drawback of the iron trade of Cleveland. Although so many furnaces are out of blast more should still be stopped to place the trade in even a moderately healthy state, as stocks are regularly increasing. The two furnaces in blast at South Bank belonging to Thomas Vaughan and Co. having fallen into the hands of the mortgagees are to be kept in blast. A marked quietude prevails in the manufactured iron trade. There is very little inquiry for bars, plates, or angles. The steel trade is less promising, judging from the reports from all the steel manufacturing centres. Though the Eston Steelworks are busy there is a lack of fresh business. Ship plates are now about 57. 5s.; angles, 57. 2s. 6d.; ordinary bars, 57.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Feb. 20.—The Rhymney Railway shareholders have met, and the upshot of the meeting was that an amendment, passed by a show of hands, was carried in favour of not proceeding with the extensions contemplated by some of the directors. On a poll, however, being taken it was found that the votes were for carrying out the Bill proposed. The minority was considerable, and the Chairman, recognising this fact, announced that the board would withdraw the Bills promoted.

Mr. Macdonald has put two questions in the House of Commons this week to the Home Secretary relative to the two recent fearful colliery explosions in the district. The first was with reference to the Abercarn disaster. He wanted to know if Mr. Cross could give any information as to whether the Ebbw Vale Company intended to make any further efforts at present for the recovery of the bodies in the pit, whether there was any law to compel them to do so, and if not, whether the Government intended to take any action compelling employers in similar cases to get out bodies of men killed on their property. In reply, the Home Secretary pointed out that he had been informed the company had spent thousands in endeavouring to explore the mine, and it would take at least twelve months, and cost 25,0000, or 30,0000, to go on to the end. He had no power to compel them to do so, and did not feel prepared to bring in a Bill to force companies to spend money which they had not got. Surely the remarks of the Home Secretary were only what could be made under the circumstances. There is no doubt the question of sentiment must in this case be allowed to give way to common sense, for it is not within the range of possibility that, supposing the remains were got at, any identification of the bodies could be made. What practical good could result one certainly fails to see. The second question of the miners' champion related to the Dinas disaster. He asked some questions relative to the management, which were answered straightforwardly enough, the Home Secretary adding that there was no intention on the part of the proprietors to close the pit.

At the Swansea Petty Sessions Mr. P. George, manager of the Western Merthyr Colliery, Llangyfelach, has been charged, under the Mines Regulation Act, with not causing the reports of the condition of the mine to be made in due time, and not signed, &c. It appeared that the fireman delayed in making the reports, and did not sign them. Defendant was fined 57.

Mr. BENJAMIN JONES, of Llanelly, has recently died, having nearly reached the allotted age of three score years and ten. Some 17 years ago he became the principal proprietor of the Rhos and Gorsgoch Collieries, and was also Chairman of the old Castle Tin-Plate Company, Llanelly, and connected with nearly all the local institutions. He was much respected.

In the Court of Appeal the case of Smith v. the Dynevor, Duffryn, and Neath Abbey United Collieries Company (Limited) has been heard. The appeal was brought by debenture-holders against a decision of Vice-Chancellor Malins sanctioning a lease of the collieries to Mr. Newell Moore. The case when before the Vice-Chancellor was duly alluded to in the Journal. The Court now dismissed the appeal with costs, without calling upon the respondents' counsel.

A somewhat important decision has been given by the magistrates

sitting at Pontypridd Police Court. A number of hauliers employed at the Ocean Collieries, Rhondda Valley, sued the proprietors for one month's wages in lieu of a month's notice. One case was heard, and the question involved was whether a door-boy should be allowed. The Bench decided that the defendants could make what changes they chose in the working of their collieries, and dismissed the case.

The Iron Trade shows no improvement—at any rate, of importance; but there are indications of a move having taken place in the demand to some slight extent. There is evidently a trifle more doing in railway iron. Clearances, too, are fairly well kept up, the largest this week being to Spain. At the steelworks, as a rule, a fair quantity of Bessemer rails is turned out. At Blaenavon there is apparently more doing in this line. No change can, however, be noted in quotations. At the Panteg Works, Monmouthshire, a section of the men have struck in consequence of the employers wanting to increase the working hours. In bar-iron there is no more doing than recently reported, but a slight movement is apparent in the demand for miscellaneous descriptions. A great deal of distress prevails among the men, and as severe weather has again set in this is likely to be increased.

So far as the Tin-Plate industry is concerned the improvement previously noted continues. There is a rumour abroad pointing to the probability of a resumption of operations at Rhiwderin.

The Powell Duffryn colliers seeing the company were in earnest have returned to their work at the reduction of 10 per cent. in wages. This step, it is said, will be followed by other proprietors, among them the name of Messrs. Brodgen being mentioned.

There is little fresh to note in the Coal Trade. Not the least change has occurred in quotations. For both steam and house qualities the demand is quite up to the average. For the former an impetus has been given to the demand on behalf of the Cape. Freight has improved in the same direction; but otherwise they are low. Shipments are fairly well maintained. Patent fuel is more active, and more animation is observable at several of the works.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Feb. 19.—This region monopolised a good share of last week's Journal, and this may be taken as an evidence of the mineralogical importance of the district. Messrs. Watson's Circular is always interesting, and last week it was so, among other things, from the estimate it contained of the percentage of lead ore found in the Gorse lode. This is stated at 5 per cent. of the contents of the lode, and would thus give about 14 cwt. to the cubic fathom. This is half the estimate of percentage of the Van lode. The Messrs. Watson can work the lode as cheaply as anybody, but it will be seen at once that the working must be economical if the mine is to pay a profit on a moderate capital. I am really glad for any prospect of ultimate success for the Parys Mine. The amalgamation of it with the Mona should be a good arrangement. When the tide of prosperity does flow in I hope the directors of the combined Mona, Morfa Du, and Parys Mines will construct a cheap tramway to the port of Amlwch. It would help to prolong profits when bad times come again.

There are a good many letters on the mineral riches of Cardiganshire from time to time in the Journal, and there is no doubt that the mineral wealth of that county is considerable, but I should like to suggest to the various correspondents the idea that, probably, a good many of the mines would pay a small company or partnership of (say) six or eight miners to work them in a small cheap way, who would, perhaps, earn in this manner half as much again, or possibly twice as much, as ordinary miners' wages. On the other hand, it is absolutely impossible, I think, that the bulk of Cardiganshire—and, indeed, Carnarvonshire—mines can ever be made to pay a profit on capital above 5000%. It is altogether out of the question to hope for mines with a little lead or a little copper to pay profit on purchase-money to the extent of from 50,000% to 70,000%. In ordinary trades there is scope for little masters and big masters, and if we are to compete with the mineral production of other countries we must apply the same rule to mining.

It is satisfactory to know that the Halkin Drainage Level is progressing, and that the successful mines are contributing—as do—to its cost. All the mines of the district should try and squeeze a little money from something else to help forward this undertaking. It will be the mining salvation of the district. Pumping in parts of the Flintshire mining country is out of the question. An attempt to pump Holywell dry would be quite as likely to succeed as one to pump some of the neighbouring mines dry.

The dykes and overflows of syenitic greenstone—not granite, as Mr. Currie Gregory puts it—would lie at the base of the Llandeilo rocks, are not confined to Carnarvonshire. They are developed in Glyn Cellog, on the borders of Shropshire and Denbighshire, where a quarry was opened some six years ago by a private company. So great is the demand for this Welsh granite, as there also it is locally called, that the same company have opened a second quarry, the stone being of good quality and in great demand.

An enquiry is being made into the lack of trade for shipping at the port of Bangor; it is believed that the restrictions imposed there have helped to drive away the slate trade. The port of Mostyn is in the heart of the lead and zinc ore district, and contiguous to large limestone quarrying operations, but the authorities have refused to allow a cargo of dynamite to be landed there, and have sent it on to Conway—a closely-packed walled town, where it is not wanted. There is not much to injure by an explosion at Mostyn Quay, and the people should not quarrel with their staple trades.

REPORT FROM THE FOREST OF DEAN.

Feb. 20.—As we intimated in our last report, what might be expected as a result of a change to milder weather has actually turned out to be the case—a decline in the demand for coals. The demand has almost entirely followed the character of the weather, the comparative briskness keeping up through the severe wintry weather, but immediately the weather sensibly eased the orders were fewer day by day, and, as illustrating the decline in orders, we may mention that Crabtree Colliery was idle during the whole of yesterday, and the night turn at the Lightmoor pits has been discontinued. Without an improvement in the iron trade the coal trade is likely to be very much influenced by the weather, because it very much influences the consumption of coal for household purposes. As yet the change has not led to any reduction of prices, and as frost again made its appearance this morning, with a fresh mantle of snow covering the ground, prices remain *in statu quo*, and if the returned cold weather continues somewhat there may even be a temporary revival in the demand for household coal. The trade in line and smith's coal is very sluggish. The iron trade is exceedingly dull, and very little is doing at some of the iron mines. As we intimated in reference to the discharge of many workmen at Dowlais, that such action would most likely tell unfavourably on employment at Edge Hill iron mine, yesterday ascertained that such has been the case—a reduction of the output of iron ore to the extent of two thirds.

At Wiggpool Iron Mine scarcely anything is being done, and nearly all round the district the output is restricted. Employment is pretty fair at the forge, but orders we believe are only limited. We are pleased to report that Mr. Chivers commenced operations in tin-plate making on Monday last, but by a visit to the works yesterday we learned that the manufactory is not yet completed, and will require a week or two at least, probably more, before a full complement of workpeople can be put on, as picking troughs, rollers, and various other portions of manufacturing apparatus, are yet incomplete. The steam hammer is a magnificent instrument, and the fly-wheel to the machinery for driving the rolls is of large size and weight; its exact weight, we are informed, is 38 tons 15 cwt., but wrought-iron added in its erection brings its entire weight close upon 40 tons. The buildings are roomy, and well arranged for the business, and proprietor, managers, and workpeople appear to know what they are about. Coal they will get from their own colliery close by, a railway having been constructed, and is worked by an engine adapted to the gauge laid down. And, further, Mr. Chivers has fixed the sluiceworks close by the side of the Great Western Railway at Churchway, and has a sliding on to his works. And pig-iron of prime quality can be had in plenty without going out of the district per the Great Western or Severn and Wye lines. There was black tin to be seen from Cornwall, and some were informed had come from Australia. Under the favourable local circumstances for supply of coal and iron, and the competency of those who take the lead in it, there is scarcely room to doubt but that the grand venture will be a success. By the time all is completed between 80,000 and 90,000 will have been spent, or such was our information. The employees are an importation from the Principality of Wales. On Monday night last the Severn Bridge was lit up with the electric light, and attracted immense attention from the people living on both sides of the river. One object in introducing it is to enable the contractors to carry on the work of construction continuously day and night, in which case we may expect some of the lost time brought up, and the completion of the bridge rendered certain at an

earlier date than would be possible by simply carrying on the work by day. Other matters must stand over till our next, as post time is now up.

SECURING AIR-LOCK DOORS IN SINKING BY COMPRESSED AIR.*

In the sinking of caissons or cofferdams for subaqueous foundations by the aid of compressed air, the ordinary pair of doors which afford access for the men from the outside into the top working chamber, and together form the air-lock, are both made to open inwards, so that the tendency of the internal air pressure is to keep them closed. But when, to save repeated openings of these doors, the excavated material is for greater convenience discharged to the outside through a shoot or spout, the door closing the inner end of this spout opens inwards, whilst that on the outer end has necessarily to be made to open outwards, the stuff in the spout preventing its being made to open inwards. As any misunderstanding of signals between the men inside the compressed-air chamber and those outside might lead to premature opening of the outside spout-door while the inside one was still unclosed, and might prove fatal to the men inside the chamber, M. Heineicheit has devised the expedient of locking the fastening bolt of the outside door by means of a sliding pin, which is worked by a rod passing through a stuffing-box into the compressed-air chamber; the pin can be withdrawn only by the men inside the chamber, and not until they have previously closed the door on the inner end of the spout. This very simple contrivance, which secures absolute safety to the men, has been applied to air-locks employed in sinking the piers for the bridge over the Rupel at Boom, for the railway from Antwerp to Tournai.

—By A. HEINEICHEIT: *Revue universelle des Mines*.

* From JAMES FORREST'S "Abstracts of Papers in Foreign Transactions and Periodicals," for the Proceedings of the Institution of Civil Engineers.

THE FAIRY LAND OF SCIENCE.

There can be little doubt that many who occupy positions in which some knowledge of scientific truths would be of considerable pecuniary advantage to them are altogether prevented from studying science by the feeling too generally entertained that, especially at the commencement, such study is necessarily uninteresting, if not repulsive; but just as the dullness or bright intelligence of the student depends to a very large extent upon the ability of the teachers under whose control he may be fortunate or unfortunate enough to be placed, so the acquisition of the crude facts of science may be made interesting or uninteresting according to the manner in which they are enunciated. The efforts, not always unsuccessful, so frequently made to enable students to pass competitive examinations in subjects of which they are almost entirely ignorant, has done much to produce a class of writing in which facts, comparatively unconnected with each other, are crowded together in the most unattractive manner; but in her *Fairy Land of Science* Miss ARABELLA BUCKLEY has shown that many of the more important truths of science may be taught in language as attractive to the young or general reader as an ordinary fairy tale. It appears that during last spring Miss Buckley delivered a series of ten lectures to juvenile audiences, which were very well received, and she has now entirely rewritten them, so that they may become a source of pleasure to a wider circle of young people, and at the same time awaken in them a love of nature and of the study of science.

"I have promised to introduce you," says the authoress, "to the fairyland of science, a somewhat bold promise, seeing that most of you probably look upon science as a bundle of dry facts, while fairyland is all that is beautiful and full of poetry and imagination; but I hope to prove to you that science is full of beautiful pictures, of real poetry, and of wonder working faeries; and what is more, I promise you they shall be true faeries, whom you will love just as much when you are old and greyheaded as when you are young, for you will be able to call them up whenever you wander by land or by sea, through meadow or through wood, through water or through air; and although they themselves will always remain invisible, yet you will see their wonderful power at work everywhere around you." After giving an outline of the *Sleeping Beauty* in the Wood she continues—"Can science bring any tale to match this? Tell me, is there anything in this world more busy or active than water as it rushes along in the swift brook, or dashes over the stones or spouts up in the fountain, or trickles down from the roof, or snakes itself into ripples on the surface of the pond as the wind blows over it? But have you never seen this water spell bound and motionless? Look out of the window some cold frosty morning in winter at the little brook which was flowing gently past the house, and see how still it lies with the stones over which it was dashing now held tightly in its icy grasp. . . . But wait awhile, the deliverer is coming. In a few weeks or days, or it may be in a few hours, the brave sun will shine down; the dull grey leaden sky will melt before him as the edge gave way before the prince in the fairy tale, and when the sunbeam gently kisses the frozen water it will be set free. . . . Is not this a fairy tale of Nature? and such as these it is which science tells."

Sunbeams and the work they do form the subject of the second lecture, and in it Miss Buckley gives a very clear notion of the distance, size, light, and heat of the sun—the great source of the sunbeams, and also of the general nature of waves of light and air; and in furnishing an idea of the speed of light waves she remarks that "whilst it would take an express train 171 years, and a cannon ball from 10 to 13 years, to reach us from the sun, these tiny waves take only 7½ minutes to come the whole 91,000,000 miles. The waves which are hitting your eyes at this moment are caused by a movement which began in the sun only 7½ minutes ago; and remember this movement is going on incessantly, and these waves are always following one after the other so rapidly that they keep up a perpetual cannonade on the pupil of your eye, so fast do they come that about 603 billion waves enter your eye in one single second." The question, What work do the sunbeams do for us? was very cleverly answered in the course of the lecture; and amongst the experiments used in illustration was the photographing of a piece of lace with the cheap chemicals now readily purchasable at almost any toy-shop. The Aerial Ocean in which we live is the title of the third lecture, and in it the nature and composition of the atmosphere, the effect of the expansion and compression of air, atmospheric pressure, the barometer, and so on, are treated of in a similarly attractive style. The next lecture describes a Drop of Water on its Travels, and furnishes a good account of the formation and nature of clouds and steam, of crystallisation, and generally of water in its vapour, liquid, and solid state. The Two Great Sculptors—Water and Ice—are dealt with in the fifth lecture, which has some most interesting illustrations, and it is shown that the hills and valleys, the steep slopes and gentle curves on the face of our earth, giving it all its beauty, and the varied landscapes we love so well, have been cut out by water and ice passing over them. It is true that some of the greater wrinkles of the earth, the lofty mountains, and the high masses of land which rise above the sea, have been caused by earthquakes and shrinking of the earth, but when once these large masses are put ready for water to work upon, then all the rest of the rugged wrinkles and gentle slopes which make the country so beautiful are due to water and ice, for which reason Miss Buckley has called them sculptors. Amongst the illustrations of this lecture are the earth pillars near Botzen in the Tyrol, Lyell's bird's-eye view of Lake Erie, the Niagara Falls, and Queenstown, the Great canyon on the Colorado, and the cliffs off Arbroath, all of which may certainly be placed among the most beautiful works of Nature of the kind.

In treating of the Voices of Nature and How to Hear Them, the sixth lecture, Miss Buckley remarks that we are all so accustomed to trust to our sight to guide us, and to think of things as we see them, that we often forget how very much we owe to sound; and yet Nature speaks to us so much by her gentle, her touching, or her awful sounds that the life of a deaf person is even more hard to bear than that of a blind one. In this lecture the nature of sound, the construction of the organs of hearing, and the cause and character of musical sounds are admirably explained. In treating of the Life

* "The Fairy Land of Science." By Miss ARABELLA B. BUCKLEY. London: Edward Stanford, Charing Cross.

of a Primrose some useful notions of vegetable physiology are given, and in the eighth lecture—the History of a Piece of Coal—an interesting account of fossil botany is given, with some excellent illustrations of some of the coal plants, of a forest of a coal period, and so on. The two remaining lectures—Bees in the Hive and Bees and Flowers—are equally attractive in their style and matter, and convey a large amount of information concerning the habits of bees and the services they render to the vegetable kingdom.

The *Fairy Land of Science*, as a whole, is well calculated to achieve the object for which it was written—that of creating a love for science by proving that the study of it is not uninteresting, and there will certainly be few who read the volume who will not be well satisfied with the large amount of amusement and instruction obtained from its perusal.

DICTIONARY OF CHEMISTRY.

The progress of chemical discovery is so rapid, and the importance of those discoveries in connection with the development of industry and advancement of science so great, that such an encyclopaedia as *Watts's Dictionary of Chemistry** becomes an absolute necessity to everyone desirous of maintaining his rank in the particular branch of the science to which he devotes himself. No matter whether he be engaged in ironworks, alkali works, dyeworks, or other industrial establishments, the chemist will find it altogether impracticable to keep himself fully acquainted with what is being published in the various chemical journals even in his own country, much less in those of Germany, France, and Italy as well. From Mr. Watts's extensive knowledge, acquired by long professional experience and with facilities for estimating the reliability and value of every statement published, which few except the Editor of the *Journal of the Chemical Society* would be likely to possess, he has been able to condense records of investigations in a masterly manner, greatly enhancing the value of the dictionary by permitting of the largest possible number of useful facts connected with any question upon which it may be consulted to be gathered in the shortest time.

The period embraced by the present work is about four years, which brings the record down to within the last six months, and it should be here observed that, although as continuing the report of progress contained in the previous volumes, it is issued as the first part of the eighth volume; this eighth volume will form a work complete in itself, the references to the original dictionary and to the supplements exactly corresponding to the references to the *Annalen*, *Jahresbericht*, or other authorities quoted, so that the eighth volume alone will be a valuable book of reference to those who find the entire work too expensive. The part now issued extends to the letter F, and contains the record of investigations bearing upon the acetones, arsenic, the benzene series, the borates, the carbamides, coal gas and the gases enclosed in coal, copper-tin alloys, corundum, cyanogen and its compounds, electricity, flame, forest trees, and innumerable other matters. The article on chemical action is a particularly valuable and instructive one, but the acid on the last line of page 427 must be read "hydrochloric." In this article the velocity of chemical action, the retardation of chemical action by indifferent substances, the decomposition of certain salts by water, double decomposition of salts in solution, the chemical equilibrium between hydrogen and gaseous iodine, the mutual replacement of halogen elements, the relations of affinity in the imperfect combustion of gases and gaseous mixtures, the relations of affinity in the slow oxidation of hydrogen and carbonic oxide by means of platinum, and the imperfect combustion of hydrocarbons are in turn referred to by noticing the investigations of those who have turned their attention to them.

The present part extends to 838 pages, and brings together an account of all really important matters that have been discovered during the period included, and it may safely be said with regard to the entire work that no industrial or scientific library, whether public or private, can be regarded as complete without it, and that there is no work or collection of works in the English language obtainable for anything nearly the same price which will afford an equal amount of information.

* "A Dictionary of Chemistry and the Allied Branches of other Sciences." By HENRY WATTS, B.A., F.R.S. &c., assisted by eminent contributors. Third Supplement. Part I. London: Longmans, Green, and Co.

THE IRON AND STEEL INSTITUTE.—The second volume for 1878 of the *Journal of the Iron and Steel Institute* has just been issued (London: E. and F. N. Spon, Charing Cross), and is of especial interest, as it contains the complete report of the Paris meeting, embracing the whole of the papers read, and the valuable discussions which arose upon them. The papers include—"Notes on the Resources of the Iron Manufacture in France," by Prof. S. Jordan, of Paris. "On the Most Recent Advances in the Manufacture of Iron and Steel as Illustrated by the Paris Exhibition," by Mr. Richard Akerman, of the School of Mines, Stockholm. "On the Mechanical and Other Properties of Iron and Mild Steel," by Mr. Daniel Adamson, of Manchester. "On Certain Matters Affecting the Use of Steel," by Mr. Ernest Marché, of Paris. "On Ponsard's Fornoconvertisseur," by Mr. J. Sylvain Périsé. There is also an admirable report of the excursions. The papers afford abundant evidence that the Institute is well maintaining its vitality, whilst its liberality in permitting the public to have the advantage of the deliberations by publishing their Transactions at a reasonable price cannot be too highly commended.

ANTIQUITY OF COPPER MINING IN CORNWALL AND DEVONSHIRE.—In next week's Journal will be published an elaborate and interesting article by Mr. JAMES QUICK on the Antiquity of Copper Mining in Cornwall. The subject is one to which the author has given considerable attention, so that his facts may be accepted as thoroughly reliable. It may be mentioned that a paper by Mr. Quick on the old Stannaries of Cornwall and Devonshire is to appear in the Monthly (recently the Quarterly) *Journal of Science* for March, and he has another paper on the Old Cornish Mines in course of preparation. A paper by him on the Cornish Pilschard Fisheries appeared in *Fraser's Magazine* some time since, and one on Cornish China Clay in the *Quarterly Journal of Science* for October, 1871.

SLAVONIC TECHNICAL LITERATURE.—A new illustrated technical journal—*Inzenierja i Budownictwo*—devoted to engineering and architecture has just made its appearance in Warsaw, and special interest will attach to it from the fact that it is the first technical newspaper in any Slavonic language, the Polish, perhaps the softest and richest of the family, being that in which it is printed. The journal is about the size of the *Illustrated London News*, and in style of printing, paper, and illustration is in every respect equal thereto, whilst the articles appear to be selected with care and judgment. Mr. W. Czarlinski, *inz. cyw.*, the editor, is favourably known to the engineers of the country. *Inzenierja i Budownictwo* well deserves success.

ACADEMIC LITERATURE IN NOVA SCOTIA.—It will be very gratifying to the many graduates of the University of King's College, Windsor, Nova Scotia, who are now resident in various parts of the world to learn that their old university still takes the lead in academic matters in Nova Scotia, and that the students, with the assistance of some of the professors and officials, have now undertaken the publication of the *King's College Record*, which will not only make the successful working of the college better known, but will confer a benefit on the province by keeping them acquainted with the scientific and literary progress making in other parts of the world. Former graduates and students are invited to assist by forwarding notices of discoveries or other interesting facts that may come under their notice which, if brief enough to be written upon a postal card, would cost little in time or otherwise to contribute, and would, no doubt, be more acceptable than longer memoirs, which are too frequently left unfinished because other duties interfere. In the United States some of the most useful pieces of information are published in the *University Students' Journals*, and there is no reason why the same should not be the case at Windsor. The first number is a creditable production, and satisfactory progress may be anticipated.

COATING AND PROTECTING IRON.

Reference was made in last week's Journal to a recently-introduced system of coating and protecting iron by affixing Portland cement to the surface by means of marine glue, and in connection with the subject it is suggested that although that proposition is ingenious such a coating would in many cases be so difficult to apply that few would be inclined to adopt it. That it would be desirable to give more attention to the preservation of the ironwork about mines will have been evident, one would think, to all who have seen a mine, but there is probably no material so readily applied and so economic in use as the ready mixed and anticorrosive paint manufactured by Messrs. PEACOCK and BUCHAN, of Southampton, the great recommendation of which is that upon its application to the metal no destructive action is set up, as is the case with many of the so-called preservatives previously employed. The early experience of Capt. Peacock on shipboard had convinced him that none of the various paints and coatings then in use attained the object in view, and he was a sufficient man of business to see that a handsome fortune was within the reach of anyone who could supply the proper kind of protective coating not only for the preservation of the iron but also for preventing fouling at a moderate cost. Now, in the attempt to solve a problem of this kind reliance upon anything like guesswork is out of the question, and the young Peacock was wise enough to discern that something more than naval and engineering experience was required to give him the hope of the reward he looked forward to. His biography is by no means uninteresting. It appears that he was originally educated in the mercantile marine, and was the pioneer of the Pacific Steam Navigation Company from 1840 to 1846, and took the first steamer that ever navigated through the Straits of Magellan and to Panama, &c., after having served for several years as a master (navigating officer) in the Royal Navy qualified for a line of battle ship. For some time previously to his (Capt. Peacock's) entering the Royal Navy he had commanded a copper sheathed ship out of Starcross (port of Exeter), in the Brazil trade, but in 1828 he passed his examination, and joined the Royal Navy as second master and naval pilot. He had, he tells us, from the year 1820 particularly observed the rapid fouling upon the bottoms of French, Italian, and Austrian vessels at Genoa, Trieste, Marseilles, Naples, &c., these vessels being coated, as was the custom of the time, with brimstone and tallow. He next applied himself to the study of the sciences of metallurgy, marine surveying, and the principles of the marine steam-engine, and in the year 1823 worked as an amateur in the engine-room of the steamer Favourite, then running between Margate and London, and subsequently in the factory of Messrs. Maudsley and Sons, of Lambeth. In June, 1828, he was appointed acting master and pilot to the very first steamer that ever hoisted a pennant under Admiralty Commission with the late Admiral F. Bullock, being employed for nearly two years in surveying the River Thames, and in practically developing what is known as Dr. Whewell's theory of the tides.

But it was whilst on duty in the West Indies that Capt. Peacock first had the opportunity of making any practical experiments upon the subject of this article; he then discovered that the action of pigments composed in any degree of copper or mercury, or even of tallow, rusted the iron very quickly; and after many years of patient and painstaking investigation—establishing steam navigation in the Pacific, and filling the honourable and arduous position of dock superintendent at Southampton—he associated himself with Mr. H. J. Buchan, of Southampton, and together these gentlemen succeeded in producing a composition, which, as it is described, "whilst rigidly discarding all deleterious compounds, not only keeps ships' bottoms clean of barnacle and rust for a longer period than any other known mixture, but also preserves the surface of the iron plates and rivet heads, and contributes to accelerate the speed of the vessel by producing an unctuous surface like the back of a fish." This has been particularly exemplified in the case of H.M.S. Himalaya, which, it seems, has used this composition solely for upwards of 25 years; also on the swift steamers of the Union Steam Ship Company to and from the Cape, the Pretoria and German having realised nearly thirty knots an hour for the whole voyage. The manufactures of Messrs. Peacock and Buchan for the coating of ships' bottoms are, however, so generally used that further reference to them is unnecessary; but in connection with the question raised by "Shareholder," in last week's *Mining Journal*, their anticorrosive paint, which is a paint in which a peculiar metallic preparation is substituted for a salt of lead, is of special value. It will readily be understood that when lead or copper is applied to iron a certain amount of chemical action necessarily follows, which is avoided by using this excellent paint, but in addition to this there is the fact that it appears to incorporate itself with the body—whether a gate post or a boiler—to which it is applied; in the case of wood it appears to enter completely into the fibre, at the same time surfacing it to such an extent that it permits of another coat being applied, either of the same or of another kind of paint, with the utmost facility. This anticorrosive paint sets quickly, dries hard, and covers a larger surface than a lead paint, comes cheaper, and if it were generally used for both iron and wood work about mines durability and economy would be secured.

ANNEALING IRON AND STEEL.—To afford increased facilities for annealing iron, steel, &c., and to produce a better effect with a reduced cost, Messrs. BRYAN and MALIPHANT, of Loughor, Glamorgan-shire, propose to place two or more furnaces at the sides of the heating chamber (thus heating both sides equally) instead of one at the end, the present custom, thus securing room for more pots than under the old arrangement. They also use a separate vault or chamber to heat the pots containing the iron (gradually up to a certain degree) before removing them to the principal chamber, in which it is subject to the greater heat required to complete the process. They also in some cases use an outer chamber for gradually cooling the pots of iron in. They also use trains slightly inclined to carry the pots on cars or rollers into the annealing chambers, as this affords great facility for placing them in and for letting them out at the other end when the operation is complete; each pot thus becomes in turn gradually subject to the highest required heat; each additional pot thus pushes the preceding one forward. They regulate the temperature by using dampers, &c., and cause the heat to circulate round all parts of the heating chamber, and by gradually heating the pots we are enabled to use cast-iron (which is much cheaper) instead of wrought-iron for the pots, and they are not subject to so much wear and tear as when suddenly heated. Doors to chambers are fitted in frames, are made air-tight, and are to be lifted up by pulleys or otherwise.

Date.	Mines.	LEAD ORES.	Tons.	Price per ton.	Purchasers.
Feb. 21—	South Darren	40	£13 15	6	Sheldon, Bush, & Co.

COPPER ORES.					
Sampled Feb. 5, and sold at the Royal Hotel, Truro, Feb. 20.					
Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols.	107	£1 7	Marke Valley	80	£3 10
ditto	89	1 11	ditto	62	3 8
ditto	81	1 6	ditto	54	4 7
ditto	81	1 7	ditto	49	3 7
ditto	87	1 7	ditto	35	2 4
ditto	76	1 11	ditto	72	3 9
ditto	73	1 6	ditto	60	3 12
ditto	71	1 3	ditto	58	3 6
ditto	70	4 11	Hingston Down	78	2 9
ditto	37	4 12	ditto	63	1 11
ditto	33	3 11	Gawton	91	1 0
ditto	88	2 14	ditto	30	2 18
ditto	86	2 17	ditto	77	2 11
ditto	70	4 7	ditto	53	2 6
ditto	50	3 1	Phoenix	60	5 7
ditto	35	7 9	ditto	40	9 18
ditto	34	7 9	ditto	30	14 18
Marke Valley	84	3 14	Bedford United	56	3 6

TOTAL PRODUCE.					
Devon Great Con.	800	£1518 15	Gawton	137	£ 17 6
South Darren	450	1710 17	Wheal Crebor	130	318 17
Marke Valley	555	1244 7	Phoenix	130	1165 10
Glasgow Caradon	190	657 13	Bedford United	56	1385 8
Hingston Down	141	292 5			

*. The complete Ticketing will be published in next week's Journal.

WHEAL BASSET.

TENDERS ARE INVITED FOR THE SUPPLY AND DELIVERY of an 80 inch cylinder PUMPING ENGINE on this Mine, either NEW or SECONDHAND.

Further particulars may be known on application to the Engineers, Messrs. JOHN HOCKING and SON, Redruth. Redruth, Feb., 1879.

MR. JOHN THOMAS (of The Glebe, Redruth) has been

favoured by instructions TO SELL, AT PUBLIC AUCTION, without reserve, at Tabb's Hotel, Redruth, on Friday, February 28th instant, at Six P.M. precisely,

200 (6000th) SHARES in the WEST WHEAL BASSET MINE.

Now standing in the books of the said Mine to the Forfeited Share Account. The Mine is situated in the parish of Illogan, in the county of Cornwall. It is now being worked at a profit, and a small rise in the price of tin would enable it to pay large dividends; and as all well-informed authorities are agreed that we shall soon see higher quotations for that metal, a very favourable opportunity is offered for investment.

For further particulars, apply to—

JOHN THOMAS, Auctioneer, Sharebroker, and Mine Machinery Valuer.

Any persons wishing to buy, but who are unable to attend the sale, can have their commissions carefully executed by writing the Auctioneer.

CORNWALL.

WEST GODOLPHIN MINE, NEAR MARAZION.

MR. A. BERRYMAN has been instructed to OFFER FOR

SALE, BY AUCTION, on the above mine, on Monday, the 3rd of March, at Eleven o'clock A.M., ALL the

MACHINERY AND MATERIALS thereon:—

CONSISTING OF

ONE 60 in. cylinder PUMPING ENGINE.

ONE 30 in. ditto ditto

ONE 14 in. HORIZONTAL ENGINE, with WHIM CAGE attached.

ONE 15 in. ditto ditto, with 24 STAMPS HEADS attached.

TWO 11 ton BOILERS; ONE 10 ton ditto; ONE 9 ton ditto.

130 fms. of pumps, from 6 in. to 14 in.; 185 fms. 2½ in. flat rods; 38 fms. 1½ in. flat rods; 14 in. pitch pine rod timber; strapping plates, of various sizes; rod

rolls; large and small shovels, in great variety and number; a large quantity of

rod, flange, and other bolts and nuts; one 8 arm capstan, and about 140 fms. of

3½ in. capstan chain; a large quantity of other chain, of various sizes; new and

old cast iron steel; new and old iron; new and old wire rope; 142 in. smith's

bellows; 140 in. ditto, nearly new; smith's tools; miners' tools; ladders; ladders;

new and old timber; wood sheds; 1 19 ft. diameter water wheel, 3 ft.

breast, with 12 stamps heads attached; a large quantity of dressing machinery,

and other material and stores; account house furniture, &c.

Also, the TIN and COPPER LEAVINGS.

The whole will be first offered in One Lot, and if not so sold then in convenient lots. If not cleared on Monday, the 3rd of March, the sale will be continued on the following day.

To view, apply on the mine to Capt. JOHN POPE; and for further information to Mr. CHARLES THOMAS, 3, Great St. Helen's, London; or to the Auctioneer, 28, Clarence street, Penzance.—Dated 14th February, 1879.

PRELIMINARY NOTICE OF SALE.

BOWERS' ALLERTON COLLIERIES (LIMITED).

YORKSHIRE.

In the High Court of Justice—Chancery Division.

MR. JOHN HEPPER (of the Firm of HEPPER and SONS,

Auctioneers, Leeds) WILL SELL, BY AUCTION, by Order of His

Lordship the Master, the ROLLS, SHORTLY, the

VALUABLE LEASEHOLD COLLIERIES,

FIXED PLANT, BUILDINGS, LOCOMOTIVES, ROLLING STOCK, SEA

AND CANAL BOATS, TOOLS, MATERIALS, AND EFFECTS belonging to the

above company, and situate at Great and Little Preston Astley and Swillington,

about seven miles from Leeds, and a half mile from the Woodlesford Station,

two miles from the Methley Station on the Midland Railway, and close to

the North-Eastern Company's Railway from Leeds to Castleford and Pontefract,

to which there are sidings, and by which there is communication with the Great

Northern System.

Index plans and particulars and conditions of sale are in course of preparation,

and may be had fourteen days prior to the sale (of which further notice will be

given) of Messrs. PATTERSON, WIGG, and CO., Solicitors, 11, Queen Victoria-street,

London; of Messrs. DIBB and CO., Solicitors, Leeds; of Messrs. DONVILLE and

CO., Solicitors, 6, New-square, Lincoln's Inn, London; of Messrs. LAMBERT,

PITCHER, and SHAKESPEARE, Solicitors, 8, John street, Bedford-row, London; of

GEORGE ARMSTRONG, Esq., Solicitor, Newcastle-on-Tyne; of Messrs. SHUM,

CROSSMAN, and CO., 3, King's-road, Bedford-row, London; and of Messrs.

HEPPER and SONS, Auctioneers, Leeds.

IN LIQUIDATION.

NEW WILDBERG MINES, RHENISH PRUSSIA.

TO BE SOLD (as a going concern), BY PUBLIC AUCTION, at

the Mart, Tokenhouse-yard, Lothbury, on Wednesday, the 26th day of

February, 1879, at Twelve for One o'clock, by Mr. HERBERT H. FULLER, of

No. 1, Queen Victoria-street, E.C., the MINING PROPERTY known as

THE WILDBERG SILVER, LEAD, AND COPPER

MINES.

Situate in RHENISH PRUSSIA, about forty miles north-east of Cologne, and

twelve miles from Waldbröl Railway Station.

It consists of MINING CONCESSIONS in perpetuity, having an area of

1,684,687 square metres. Concessions of water for power purposes. Freehold and

other lands about 140 acres, with PUMPING, WINDING, DRESSING MA-

CHINERY, and MINE PLANT. Numerous buildings and extensive smelting

works.

Full particulars may be had on application to the Liquidator, UPFIELD GREEN,

Esq., at the offices of the company, No. 2, Coleman-street Buildings, Moorgate-

street, E.C.; or to the Auctioneer, 1, Queen Victoria-street, London, E.C.

FOR SALE, at WEST MARIA and FORTESCUE:—

A 16 inch AIR COMPRESSOR and RECEIVER, by MacClellan, Glasgow,

with 14 inch ENGINE, 166 fathoms 2½ inch lap-welded STEAM TUBING, and

20 fathoms 1½ inch ditto.

ONE MCKEAN'S ROCK DRILL, with all necessary appliances, as good as

new.

ONE 66 inch PUMPING ENGINE, with TWO BOILERS.

ONE 24 inch WINDING ENGINE, Cornish Crusher, Brunton's Calculator.

A quantity of from 5 to 14 inch PUMPS, with all attachments, complete.

Also, 150 fathoms of good 14 inch CAPSTAN ROPE.

Apply to—

WM. MATHEWS, ENGINEER, TAVISTOCK.

FOR SALE, a NEW 70 inch cylinder CORNISH BEAM

PUMPING ENGINE, 10 ft. stroke in cylinder and 9 ft. in the shaft,

with steam case, metallic piston, and wrought gudgeon. The false cover, per-

pendicular pipes, weigh posts, working and nozzle gear all fitted bright. A strong

substantial well made engine, complete, including cast iron casings for top and

bottom nozzles with bright covers, holding down bolts and wrought-iron caps and

bolts for connection to main rod.

Apply to WILLIAMS'S FERRAN FOUNDRY COMPANY, Ferranworthal, Cornwall.

Dated Jan. 20, 1879.

TO BE SOLD (CHEAPLY) THREE of GREEN'S PATENT

JIGGERS, equal to new, with DRIVING SHAFTS and PULLEYS, all

complete; also a large quantity of other MINING MACHINERY.

Apply to Mr. G. WILLIAMS, Merchant, 6 and 7, Baker-street, Aberystwith,

Gouth Wales.

18 H.P. PORTABLE STEAM ENGINE, with link motion

reversing gear, ready for delivery; also gear to wind and pump.

A 9-h.p. VERTICAL STEAM ENGINE, with link motion, reversing gear

(winding drum if required).

A 6-ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER, with

carriage and travelling wheels.

Apply to—

BARROWS and STEWART, ENGINEERS, BANBURY.

HORIZONTAL ENGINE, 15-horse power, strong, and well-

finished, with fly-wheel, wrought crank shaft 5 in. diameter,

and massive box bed; suitable for winding or general purposes;

quite new. Price £70.

HORIZONTAL ENGINE, 8 in. cylinder, beautiful and most im-

proved design, new and complete, with pump and governor. £38.

ALEXANDER SMITH,

ENGINEER, DUDLEY, WORCESTERSHIRE.

THOMAS BROTHERS,

MINING SHAREBROKERS AND MINERAL SURVEYORS,

STRAND CHAMBERS,

STRAND STREET, LIVERPOOL.

T. V. CLARKE AND CO.,

TRUNDLEY LANE, SURREY CANAL,

DEPTFORD, S.E.

ARE BUYERS OF

CALAMINE and BLENDE; ZINC and LEAD ASHES, SULPHATE OF

LEAD, and OTHER METAL RESIDUES.

N.B.—Sole Manufacturers of the Palm Anti-Friction Grease and Lubricating Oils

for Collieries, Mines, &c.; also the Asphaltic Varnish Paint for coating outdoor

Ironwork and Machinery.

THE SANDYCROFT FOUNDRY AND ENGINE WORKS COMPANY (LIMITED),

NEAR CHESTER

(Late the MOLD FOUNDRY COMPANY. Established 1838.)

MAKERS OF

MINING MACHINERY,

CORNISH PUMPING, WINDING, AND EVERY OTHER DESCRIPTION

OF ENGINE.

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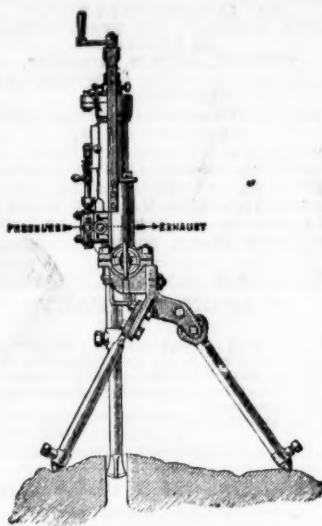
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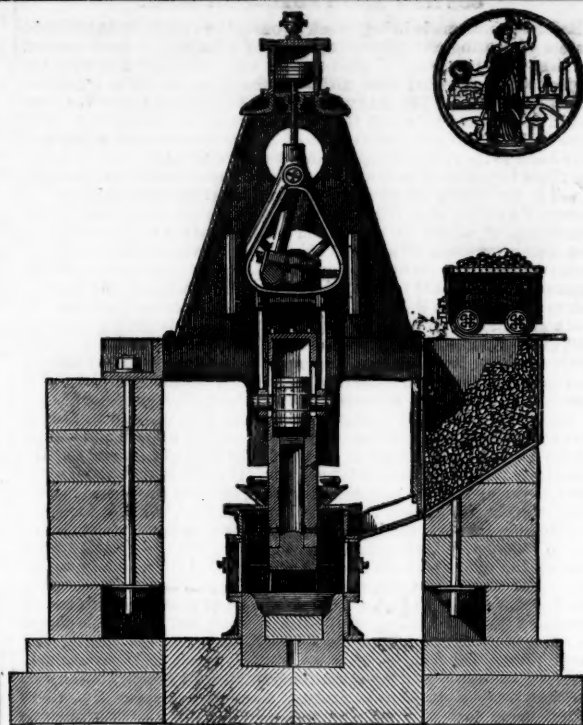
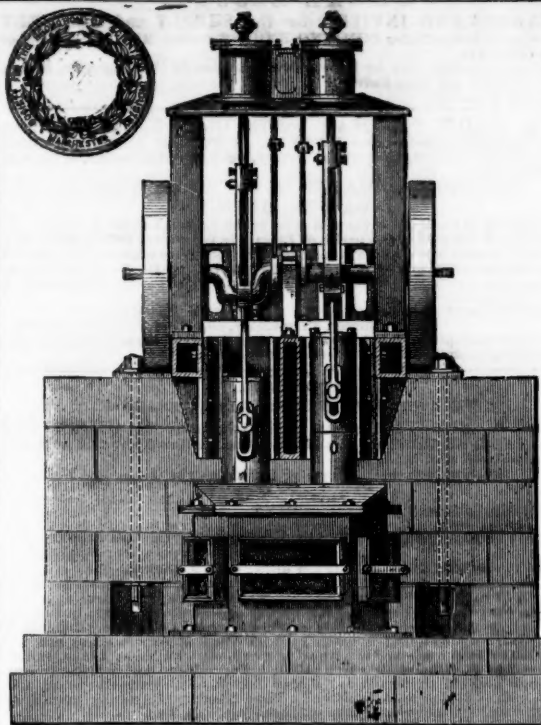
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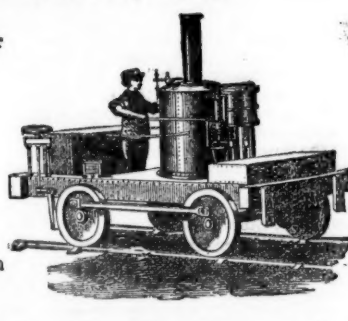
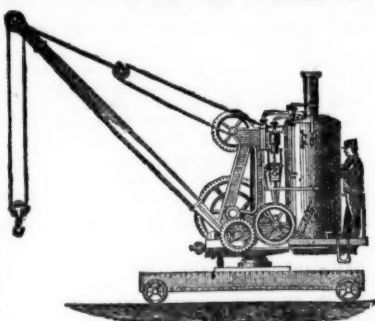
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1000	Carn Brea, c. t., Illogan	5 7 8	29	27 30	308 0 0	1 0 0	Feb. 1878
400	Cashwell, i., Camberland	2 10 0	—	—	1 9 0 0	2 0 0	Aug. 1876
2450	Cook's Kitchen, i., Illogan	25 4 9	1	3 1	11 17 0 0	1 0 0	Jan. 1877
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25000	Wh. Eliza, c. t., i., St. Austell	1 0 0	—	—	0 8 6 0	4 0 0	Sept. 1877
80	Wh. Eliza, c. t., i., St. Austell	173 15 0	—	—	622 10 0 0	4 0 0	Aug. 1872
3000	Wh. Eliza, c. t., i., St. Austell	7 11 0	—	—	0 15 0 0	5 0 0	Nov. 1878
6 00	Wh. Eliza, c. t., i., St. Austell	0 5 0	—	—	0 4 0 0	1 0 0	July 1877
10000	Wye Valley, i., i., Montgomery	3 0 0	—	—	0 10 6 0	4 0 0	Oct. 1876

FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last wk.
35500	Alamillos, i., i., Spain	2 0 0	—	—	1 19 9 0	0 6 0	Oct. 1878
30000	Almada and Tinto Consols, s. i., i., Spain	1 0 0	—	—	0 6 3 0	1 0 0	May 1876
90000	Australian, c. t., i., South Australia	7 7 8	—	—	1 1 6 0	2 0 0	July 1878
10000	Battle Mountain, s. i., i., (2640 part pd.)	5 0 0	—	—	0 10 0 0	10 0 0	Nov. 1879
18000	Birdseye Creek, c. t., i., California	4 0 0	—	—	0 14 0 0	2 0 0	Dec. 1874
20000	Cape Copper Mining, i., i., So. Africa	7 0 0	—	—	33 2 0 0	17 6 0	Dec. 1878
24433	Cedar Creek, c. t., i., California	5 0 0	—	—	0 8 0 0	2 0 0	Jan. 1878
25000	Cesena Sul. Co., i., i., Romagna, Italy	10 0 0	—	—	0 18 0 0	2 0 0	Aug. 1878
18000	Chicago, s. i., i., Utah	10 0 0	—	—	2 8 0 0	4 0 0	Nov. 1876
65000	Colorado United, s. i., i., Colorado	5 0 0	—	—	0 13 6 0	4 0 0	Jan. 1876
10000	Copio, c. t., i., Chile (250 shares)	18 15 0	—	—	7 11 5 0	3 0 0	May 1877
100000	Don Pedro North del Rey	0 18 0	—	—	2 8 0 0	2 0 0	Mar. 1872
28500	Eberhardt & Aurora, s. i., Nevada	10 0 0	—	—	1 8 0 0	3 0 0	Dec. 1877
70000	English & Australian, c. t., i., S. Aust.	2 10 0	—	—	2 16 9 0	1 0 0	Mar. 1878
80000	Flagstaff, s. i., i., Utah	10 0 0	—	—	4 2 0 0	10 0 0	July 1873
35000	Fortuna, i., i., Spain	2 0 0	—	—	7 3 2 0	1 6 0	Oct. 1878
50000	Frontino & Bolivia, s. i., i., New Gran.	2 0 0	—	—	0 2 6 0	3 0 0	Sept. 1878
9000	Gold Run, s. i., i., Nevada	1 0 0	—	—	0 2 4 0	4 0 0	Oct. 1872
100000	Herules and Roe, s. i., i., Colo., fy. pd.	2 0 0	—	—	2 8 0 0	2 0 0	Jan. 1876
90000	Kapunda Mining Co., i., i., Australia	1 0 0	—	—	0 2 4 0	2 0 0	June 1873
30000	Last Chance, s. i., i., Utah	5 0 0	—	—	0 14 0 0	2 0 0	July 1873
18000	Liars, i., i., Spain	3 0 0	—	—	17 10 4 0	2 0 0	Oct. 1876
16000	Louisa, c. t., i., California	3 0 0	—	—	0 1 0 0	1 0 0	July 1876
7831	Louisiana, Portugal, i., i., (25 sh.)	3 10 0	—	—	1 11 6 0	1 6 0	Mar. 1873
8000	Mamm. Copperopolis of Utah, s. i., i., Utah	10 0 0	—	—	0 4 0 0	8 0 0	Dec. 1872
10000	Montezuma, c. t., i., France	20 0 0	—	—	26 19 8 0	4 0 0	Jan. 1879
100000	Port Phillip, s. i., i., (25 sh.)	1 0 0	—	—	1 12 0 0	1 0 0	Mar. 1879
51000	Richmond Consols, s. i., i., Nevada	5 0 0	—	—	7 1 8 0	10 0 0	Feb. 1879
40000	Santa Barbara, s. i., i., Brazil	0 10 0	—	—	0 6 5 0	1 0 0	Nov. 1878
10000	Scottish Australian Mining Co., i., i., New	1 0 0	—	—	15 per cent.	—	Nov. 1878
80000	Scottish Austral. Mining Co., New	0 10 0	—	—	1 19 0 0	1 0 0	Oct. 1878
122500	Sierra Buttes, c. t., i., California	2 0 0	—	—	2 1 0 0	3 0 0	Oct. 1878
140625	S. B. Pumas Eureka, c. t., i., Nevada	2 0 0	—	—	2 1 0 0	3 0 0	Oct. 1878
90000	South Aurora, s. i., i., Nevada	5 0 0	—	—	0 14 2 0	2 0 0	Nov. 1873
250000	St. John del Rey, i., i., (25 stock & multiples dealt in)	255 275	—	—	34 year 15 p. cent.	—	Dec. 1878
20000	Tollins, s. i., i., America	5 0 0	—	—	0 11 6 0	6 0 0	May 1874
80000	Victoria (London), s. i., i., Australia	1 0 0	—	—	0 12 6 0	0 7 0	Jan. 1878
18000	Western Andes, s. i., i., New Granada	5 0 0	—	—	0 12 0 0	12 0 0	July 1876
21000	W. Prussian (5000 pref. sh. 10s. pd)	10 0 0	—	—	1 10 0 0	4 0 0	Jan. 1879

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Divs	Pr.	Last Call.
12000	Argentine, <i>s. i.</i> , Argentine Republic	5 0 0	—	—	—	—
3000	Bellavista, <i>s. i.</i> , Peru* (£10 shares)	10 0 0	—	—	—	—
8000	Blue Tent, <i>Hyd.</i> , California	5 0 0	—	—	—	—
10000	Buena Ventura,* <i>i.</i> , Llano de las Infantas, Spain (£2 sh.)	0 5 0	—	—	—	—
49935	Chontales, <i>s. i.</i> , Nicaragua*	2 0 0	—	—	—	—
18000	Conchos de Chili, <i>s. i.</i>	5 0 0	—	—	—	—
30000	English Australians, <i>s.</i> , Victoria*	1 0 0	—	—	—	—
35 00	Excelsior Hydraulic Gold Washing Co., California*	6 0 0	—	—	—	—
100000	Exchequer, <i>s. i.</i> , California*	1 0 0	—	—	—	—
40000	Holcombe Valley, <i>s. i.</i> , California	1 0 0	—	—	—	—
8000	Hornoschos,* <i>s. i.</i> , Spain	10 0 0	—	—	—	—
12000	Hutafall,* <i>i.</i> , <i>bl.</i> , Orebro, Sweden	5 0 0	—	—	—	—
12000	Hunter Consolidated, <i>s. i.</i> , Utah	10 0 0	—	—	—	—
30000	Imperial Brazilian Collieries, Brazil*	5 0 0	—	—	—	—
7500	Isabelle, <i>s. i.</i> , California (£20 shares)	5 0 0	—	—	—	—
100000	J. X. L., <i>s. i.</i> , California*	5 0 0	—	—	—	—
60000	Javali, <i>s.</i> , Nicaragua*	2 0 0	—	—	—	—
3500	La Mancha, <i>i.</i> , New Zealand	10 0 0	—	—	—	—
12000	Lancaster,* <i>i.</i> , <i>s.</i> , Vicaya, Spain (£2 shares)	1 15 0	—	—	—	—
7500	Malabar, <i>s.</i> , Colombia (27185 issued)	1 0 0	—	—	—	—
40000	Malpas,* <i>s.</i> , Colombia (7400 pref. shares, fully paid)	1 0 0	—	—	—	—
42000	Mauzeberg, <i>c.</i> , Hounof, Germany*	5 0 0	—	—	—	—
4588	New Boreberg, <i>i.</i> , <i>i.</i> , Germany	5 0 0	—	—	—	—
60000	New Queensland, <i>c.</i> , Venezuela*	5 0 0	—	—	—	—
30000	New Zealand Kapanga, <i>s.</i> , Coromandel*	5 0 0	—	—	—	—
5000	Oregon, <i>s.</i> , Oregon, U.S. (preference shares)	4 0 0	—	—	—	—
80000	Panuello, <i>c.</i> , Chili* (£20000 debentures)	4 0 0	—	—	—	—
90000	Pastorens United, <i>s.</i> , Italy*	3 0 0	—	—	—	—
25000	Pitaville,* <i>s.</i> , Brazil (incl. 6000 sh. £1 fully paid)	0 5 0	—	—	—	—
25000	Placerville,* <i>s.</i> , <i>s.</i> , California	2 0 0	—	—	—	—
50000	Providence and New Rosario, <i>s.</i> , Mexico*	1 0 0	—	—	—	—
40000	Ravenscliff, <i>s.</i> , New Zealand; <i>c.</i> , South Australia	0 5 0	—	—	—	—
5 000	Rica, <i>s.</i> , Colombia* (40000 issued)	1 0 0	—	—	—	—
22,181,000	Rio Tinto,* <i>s.</i> , <i>s.</i> , Huéve, Spain	1 0 0	—	—	—	—
100000	Rosca Grande, <i>s.</i> , Brazil* (£1 shares)	1 0 0	—	—	—	—
30040	Russia Copper, Orenburg and Ufa*	10 0 0	—	—	—	—
320 00	Sentinel,* <i>i.</i> , Arizle, France	1 0 0	—	—	—	—
10000	Silver Plume, <i>s.</i> , Colorado*	1 0 0	—	—	—	—
80000	Tecoma, <i>s.</i> , Utah*	10 0 0	—	—	—	—
43174	Utah Mexican,* <i>s.</i> , Mexico*†	29 0 0	—	—	—	—
14000	Utah, <i>s.</i> , <i>s.</i> , Utah*	5 0 0	—	—	—	—
50000	Virneberg, <i>c.</i> , Rheinbreitbach, Germany*	5 0 0	—	—	—	—
75000	Yorke Peninsula, <i>c.</i> , South Australia	1 0 0	—	—	—	—
54800	Yorke Peninsula, <i>c.</i> , South Australia Preference	1 0 0	—	—	—	—